GSD Series DC Drives

Section42

GS series and *DURA*PULSE AC Drives

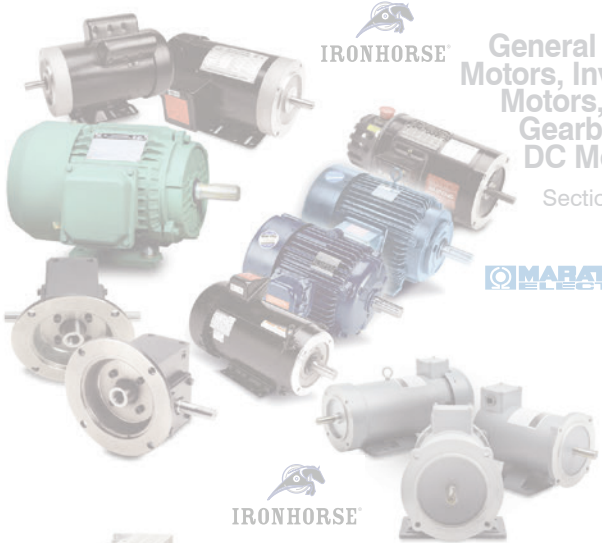
Section 13

Soft Starters

Section 14

General Purpose Motors, Inverter Duty Motors, Worm Gearboxes, DC Motors

Section 15



Steppers and Servos

Section 16

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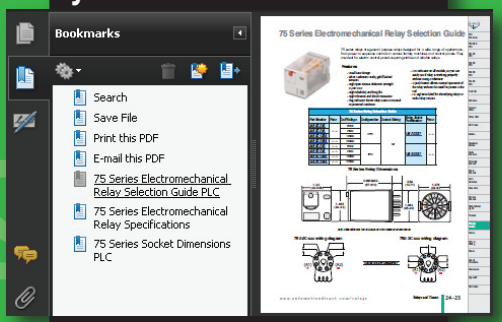

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Drives/Motors/Motion

IRONHORSE®

GSD Series DC Drives

Ironhorse DC drives that can accommodate DC motors 1/50HP @ 12VDC up to 3HP @ 240VAC

GSD1 Series

- Low Voltage PWM
- 12/24/36VDC input
- Up to 20A output current

GSD1-12-10C

GSD1-12-10N4X

GSD1-12-20C

GSD1-24-10C

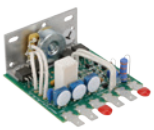
GSD1-24-10N4X

GSD1-24-20C

GSD3 Series

- Small, compact
- 12/24VAC, 120/240VAC input
- Up to 2A output current

GSD3-240-2CJ


GSD3-240-2CL

GSD3-240-3N4

GSD3-24A-2CJ

GSD3-24A-2CL

GSD3-24A-3N4

GSD4 Series

- Economical, general purpose
- 24/36VAC, 120/240VAC input
- Up to 10A output current

GSD4-240-10N4X

GSD4-240-1C

GSD4-240-5C

GSD4-24A-5C

GSD5 Series

- General purpose, many enclosed options
- 120/240VAC input
- Up to 10A output current

GSD5-240-10C

GSD5-240-10N4

GSD5-240-10N4-A

GSD5-240-10N4-R

GSD5-240-10N4-V

GSD6 Series

- Full featured, up to 3HP
- 120/240VAC input
- Up to 15A output current

GSD6-240-15C

GSDA-DP

Digital Potentiometer:

- Provides speed reference to drives
- Configurable for any unit
- Scalable, repeatable, simple
- Easy for operators to set precisely

GSD7 Series

- Reversing
- 120 or 240VAC input
- Up to 10A output current

GSD7-120-10CR30

GSD7-120-1CR3

GSD7-120-1CR30

GSD7-120-5CR3

GSD7-240-10CR30

GSD7-240-1CR3

GSD7-240-5CR3

Why choose DC?

DC motors and drives provide several advantages and benefits over AC-powered devices:

- Inexpensive – DC drives are typically less expensive than AC drives
- Low speed performance – DC drives and motors provide excellent low speed control and stability
- Low speed power – DC motors provide exceptional low speed torque and power
- Simple – our DC drives are typically configured with potentiometers – no parameters or programming needed

Choose the DC drive you need below

Click on part # to view specifications

Frame	Input Voltage	Amps	Motor HP	Part #
Enclosed	12VDC	10	1/50 - 1/8	GSD1-12-10N4X
	12/24VAC	3	1/50-1/25 (12V); 1/25-1/12 (24V)	GSD3-24A-3N4
	24/36VDC	10	1/50-1/4	GSD1-24-10N4X
	120/240VAC	3	1/50-1/3 (90V); 1/25 - 2/3 (180V)	GSD3-240-3N4
		10	1/8-1 (90v); 1/4-2 (180v)	GSD4-240-10N4X
		10	1/8 - 1 (90V); 1/4 - 2 (180V)	GSD5-240-10N4
		10	1/8 - 1 (90V); 1/4 - 2 (180V)	GSD5-240-10N4-R
		10	1/8 - 1 (90V); 1/4 - 2 (180V)	GSD5-240-10N4-A
		10	1/8 - 1 (90V); 1/4 - 2 (180V)	GSD5-240-10N4-V
Open Frame	12VDC	10	1/50 - 1/8	GSD1-12-10C
		20	1/25 - 1/4	GSD1-12-20C
	12/24VAC	2	1/50-1/40 (12V); 1/25-1/20 (24V)	GSD3-24A-2CL
		2	1/50-1/40 (12V); 1/25-1/20 (24V)	GSD3-24A-2CJ
	24/36VAC	.15 - 5.5	1/50-1/6	GSD4-24A-5C
	24/36VDC	10	1/50-1/4	GSD1-24-10C
		20	1/25-1/2	GSD1-24-20C
	120/240VAC	1.2	1/50-1/8 (90V); 1/25-1/4 (180V)	GSD4-240-1C
		15	1/8-1.5 (90V); 1/4-3 (180V)	GSD6-240-15C
		2	1/50-1/6 (90V); 1/25-1/3 (180V)	GSD3-240-2CL
		2	1/50-1/6 (90V); 1/25-1/3 (180V)	GSD3-240-2CJ
		5.5	1/8-1/2 (90v); 1/4-1(180v)	GSD4-240-5C
		10	1/8 - 1 (90V); 1/4 - 2 (180V)	GSD5-240-10C
Auto Reversing	120VAC	1.2	1/15 to 1/8	GSD7-120-1CR3
		5.5	1/8 to 1/2	GSD7-120-5CR3
		1.2	1/15 to 1/8	GSD7-120-1CR30
		10	1/8 to 1	GSD7-120-10CR30
	240VAC	1.2	1/25 to 1/4	GSD7-240-1CR3
		5.5	1/8 to 1	GSD7-240-5CR3
		10	1/4 to 2	GSD7-240-10CR30

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IronHorse GSD Series DC Drives

GSD Series DC Drives Overview and Selection Guide

GSD DC Drives – Series Comparisons						
Series	***GSD1***	***GSD3***	***GSD4***	***GSD5***	***GSD6***	***GSD7***
Package Configurations Available	open frame NEMA 4X	open frame NEMA 4	open frame NEMA 4X	open frame NEMA 4/12	open frame	open frame
Power Quality Form Factor	1.05	1.4				
Input Voltages	12 VDC 24/36 VDC	12/24 VAC 120/240 VAC	24/36 VAC 120/240 VAC	120/240 VAC	115/230 VAC	120 VAC 240 VAC
Output Voltages	0–12 VDC 0–24/36 VDC	0–12/24 VDC 0–90/180 VDC	0–20/30 VDC 0–90/180 VDC	0–90/180 VDC	0–90/180 VDC	0–90/180 VDC
Shunt Field Voltages & (Currents)	–	10/20 VDC 100/200 VDC (0.75–1A)	20/30 VDC 100/200 VDC (0.5–1A)	100/200 VDC (1A)	100/200 VDC (1.5A)	100/200 VDC (1A)
Motor Ratings (hp)	1/50 – 1/2 hp	1/50 – 2/3 hp	1/50 – 2 hp	1/8 – 2 hp	1/8 – 3 hp	1/50 – 2 hp
Max Output Current (continuous)	10–20A (DC)	0.15–3A (DC)	1.2–10A (DC)	0.15–10.8A (DC)	15A (DC)	0.5–10A (DC)
Current Overload Capacity	150% for 60s	200% for 60s	200% for 60s	150% for 60s	200% for 60s	200% for 60s
Current Limit	adjustable 0-200%	none	adjustable 1–2.5A (DC) 1–15A (DC)	adjustable 1–15A (DC)	adjustable 2–30A (DC)	adjustable 0.3–18A (DC)
Transient Protection	none	Metal Oxide Varistor (MOV)				
I.R. Compensation	adjustable	adjustable	adjustable	adjustable	adjustable	adjustable
Speed Adjustment	5kΩ pot or 0–10VDC input signal	5kΩ pot	5kΩ pot or 0–5/10/250 VDC or 4–20mA input signal	5kΩ pot or 0–10 VDC input signal	5kΩ pot	5kΩ pot or 0–10 VDC input signal
Speed Range	30:1	25:1	50:1	50:1	50:1	50:1
Speed Regulation	±1% of base speed					
Maximum Speed	adjustable 50–100%	adjustable 40–120%	adjustable 60–100%	adjustable 66–110%	adjustable 60–120%	adjustable 60–110%
Minimum Speed	adjustable 0–30%					
Acceleration	adjustable 0–10s	0.5s (fixed)	0.5s (fixed)	adjustable 0.5–8s	adjustable 0.3–12s	0.5s (fixed)
Deceleration	0.5s (fixed)	n/a (follows ramp of the reference)	adjustable 0.5–8s	adjustable 0.06–80s	adjustable 0.6–12s	0.5s (fixed)
Plugging* / Dynamic Braking	no					yes
Operating Temperature	-10–45 °C [14–113 °F]	-10–45 °C [14–113 °F] -10–40 °C [14–104 °F]	-10–45 °C [14–113 °F] -10–40 °C [14–104 °F]	-10–45 °C [14–113 °F]	-10–45 °C [14–113 °F]	-10–45 °C [14–113 °F]

**** Plugging is a method of rapidly changing motor direction by reversing motor armature polarity, while the motor is still running.***

GSD1 Series DC Drives

GSD1 Introduction

GSD1-xx-xxC

GSD1-xx-10NRX

GSD1 Series DC Drives	
Motor Rating Range @ 12 VDC_{IN}	*1/50 – 1/4 hp*
Motor Rating Range @ 24/36 VDC_{IN}	*1/50 – 1/2 hp*

Overview

IronHorse GSD1 series DC drives are high-performance Pulse-Width-Modulated (PWM) controllers for 12 to 36 volt battery/solar-powered equipment providing smooth control with high-efficiency operation.

The advanced design permits a substantial increase in the equipment running time between charges over conventional techniques.

Features include adjustable maximum speed, minimum speed, current limit, I.R. compensation, and acceleration. The adjustable current-limit feature protects the control, battery, and motor from sustained overloads.

GSD1 series DC drives are available in open-frame and NEMA 4X enclosed styles, and all come standard with a speed pot, knob, and dial plate.

Features

- Provides smooth variable speed capability for mobile equipment
- Increases range or running time of battery operated equipment through high efficiency
- Allows reduction in battery size without loss of operating range
- Automatic compensation to allow for declining battery voltage
- Speed regulation is ±1% of base speed
- Adjustable maximum speed
- Adjustable minimum speed
- Adjustable IR compensation
- Adjustable current limit
- Adjustable acceleration speed
- Maintains variable speed control as batteries discharge
- 5kΩ speed pot with leads, knob and dial included
- Speed adjustment using 5kΩ speed pot or optional 0–10 VDC analog input signal
- Inhibit terminal permits optional start-stop without breaking battery line

Accessories

- Replacement speed potentiometer kit
- Digital speed potentiometer

Detailed descriptions and specifications for GSD accessories are available in the "GSD Series DC Drives Accessories" section.

Typical Applications

- Auger feeders
- Automated door actuators
- Commercial cooking equipment
- Commercial lift
- Food production
- Industrial pumping systems
- Measurement instruments
- Miniature lathes and mills
- Packaging / material-handling equipment
- Printing and labeling machines
- Small shop machine tools
- Spray / print reciprocating head

GSD1 Series DC Drives

GSD1 Selection and Specifications

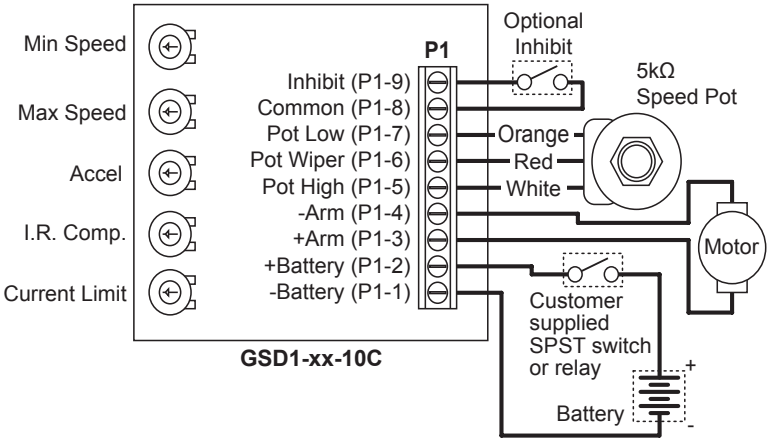
GSD1 Series DC Drives – Selection & Specifications						
Model	***GSD1-12-10C***	***GSD1-12-10N4X***	***GSD1-12-20C***	***GSD1-24-10C***	***GSD1-24-10N4X***	***GSD1-24-20C***
Price	<--->	<--->	<--->	<--->	<--->	<--->
Package Configuration	open frame	NEMA 4X	open frame	open frame	NEMA 4X	open frame
Power Quality Form Factor	1.05					
Input Voltage **	12 VDC ±15%			24/36 VDC ±15%		
Output Voltage	0–12 VDC			0–24/36 VDC		
Motor Rating (hp)	1/50 – 1/8		1/25 – 1/4	1/50 – 1/4		1/25 – 1/2
Output Current (continuous)	10A (DC)		20A (DC)	10A (DC)		20A (DC)
Current Overload Capacity	200% for 10s; 150% for 60s					
Current Limit	adjustable to 200% of motor Full Load Current (up to the Continuous Output Current rating of the drive)					
I.R. Compensation	adjustable					
Speed Adjustment	5kΩ potentiometer or 0–10 VDC input signal					
Speed Range	30:1					
Speed Regulation	1% of base speed					
Maximum Speed	adjustable from 50% to 100% of base speed					
Minimum Speed	30% of adjustable maximum speed					
Acceleration	adjustable from 0–10s					
Deceleration	0.5s (non-adjustable)					
Dynamic Braking	no					
Plugging Capability ***	no					
Internal Operating Frequency	18 kHz		approx 800 Hz	18 kHz		approx 800 Hz
Electrical Connections	barrier terminal block; accepts 12–6 AWG					
External Fusing Required	Bussman ABC or Littlefuse 314 series ceramic fuses or equivalent DC rated @ 150% motor Full Load Current (up to 200% Continuous Output Current rating of drive)					
Operating Temperature	-10 to 45 °C [14 to 113 °F]					
Thermal Protection	none					
Mounting Orientation	can be mounted in any orientation					
Corrosive Gases	NOT compatible with any corrosive gases					
Weight	6oz [170g]	37 oz [1049g]	10.5 oz [297g]	6oz [170g]	37 oz [1049g]	10.5 oz [297g]
Agency Approvals	RoHS					
Optional Accessories *						
Replacement Potentiometer	GSDA-5K					
Digital Potentiometer	GSDA-DP					

**** For accessories details, refer to the "GSD Series DC Drives Accessories" section.***
***** Input power supply must not exceed recommended voltage, or it may damage the GSD1 drive.***
Linear power supply can be sized per drive voltage and motor full load current.
Switched power supply should be sized per drive voltage and double the motor full load current.
****** Plugging is a method of rapidly changing motor direction by reversing motor armature polarity, while the motor is still running.***

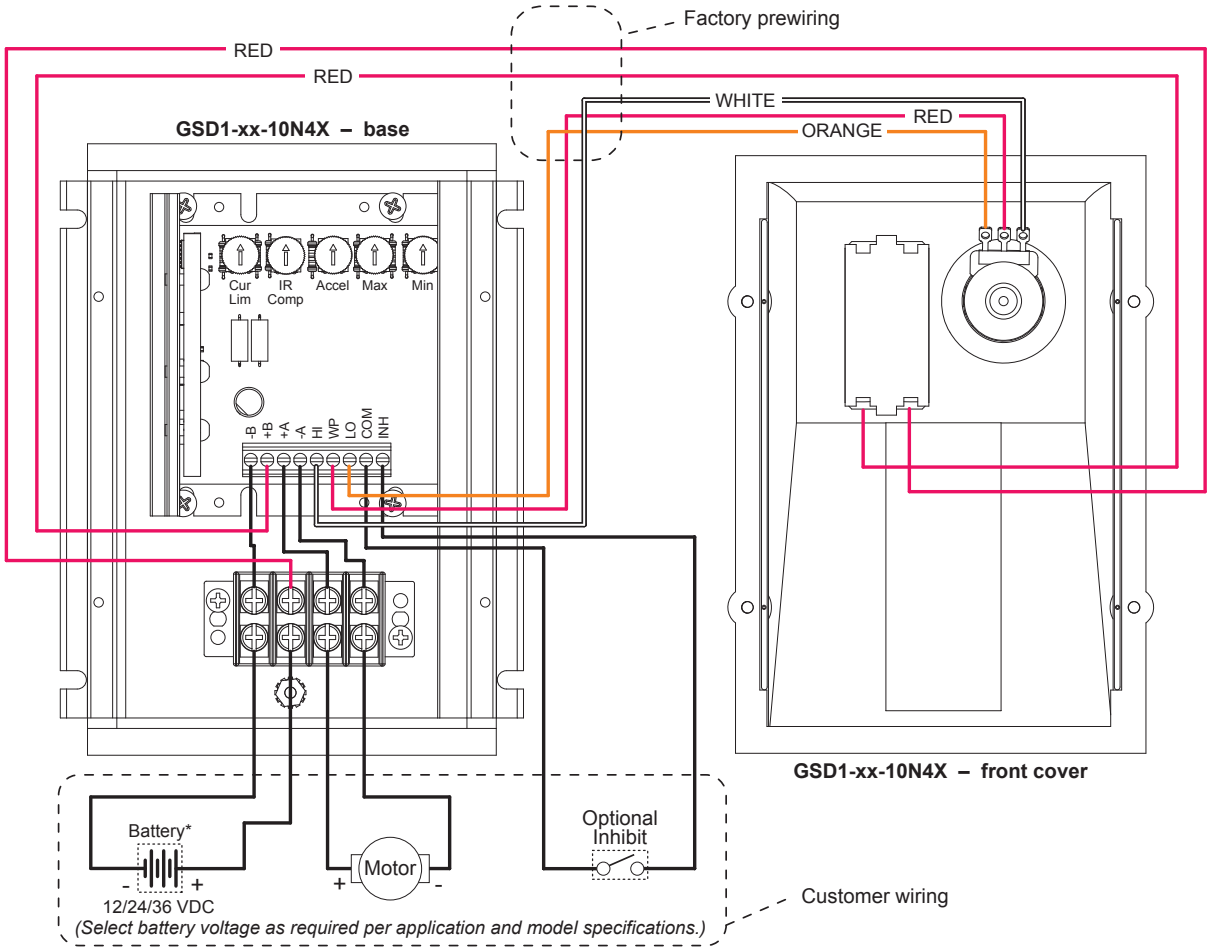
GSD1 Series DC Drives

GSD1 Wiring Diagrams

GSD1-xx-10C Basic Wiring Diagram – *(refer to User Manual for more detailed wiring information)*



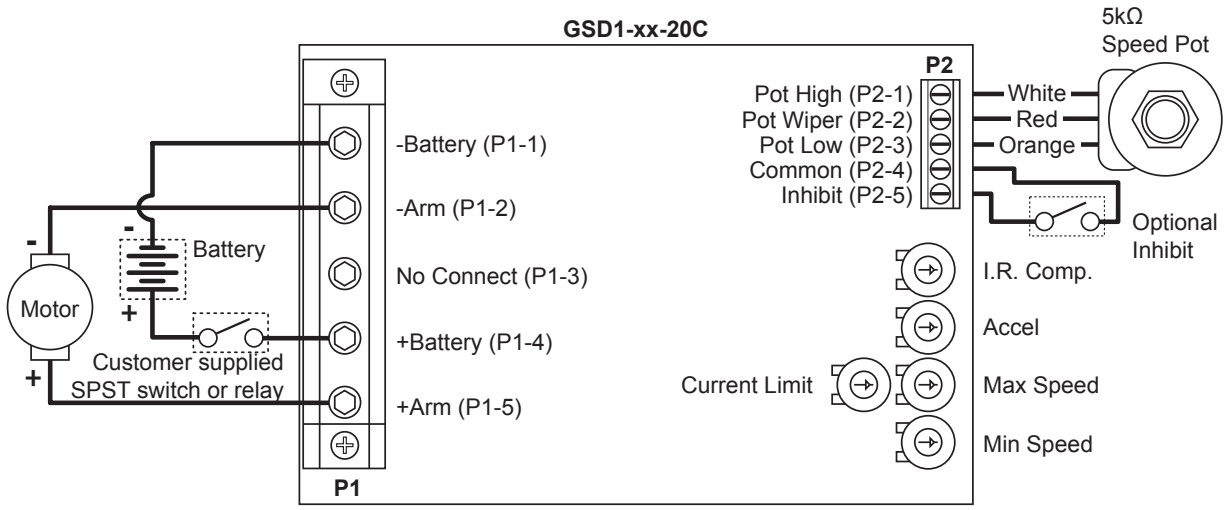
GSD1-xx-10N4X Basic Wiring Diagram – *(refer to User Manual for more detailed wiring information)*



GSD1 Series DC Drives

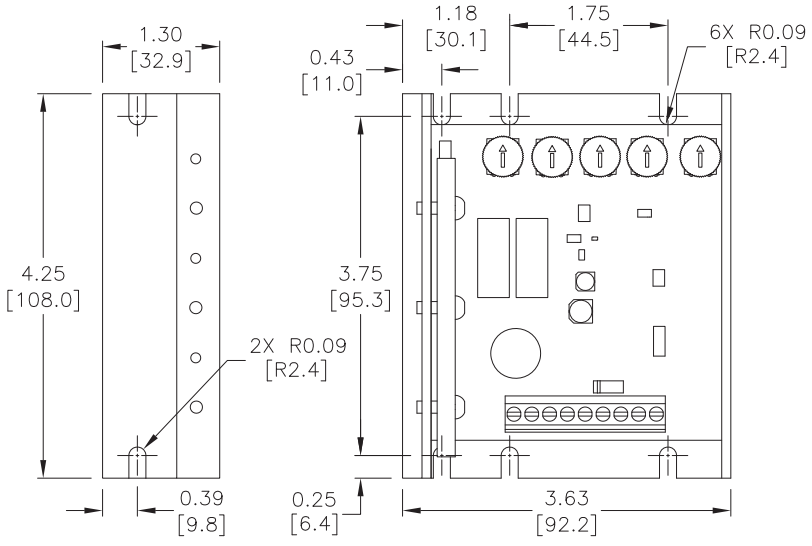
GSD1 Wiring Diagrams

GSD1-xx-20C Basic Wiring Diagram – *(refer to User Manual for more detailed wiring information)*



GSD1 Dimensions – *dimensions = in [mm]*

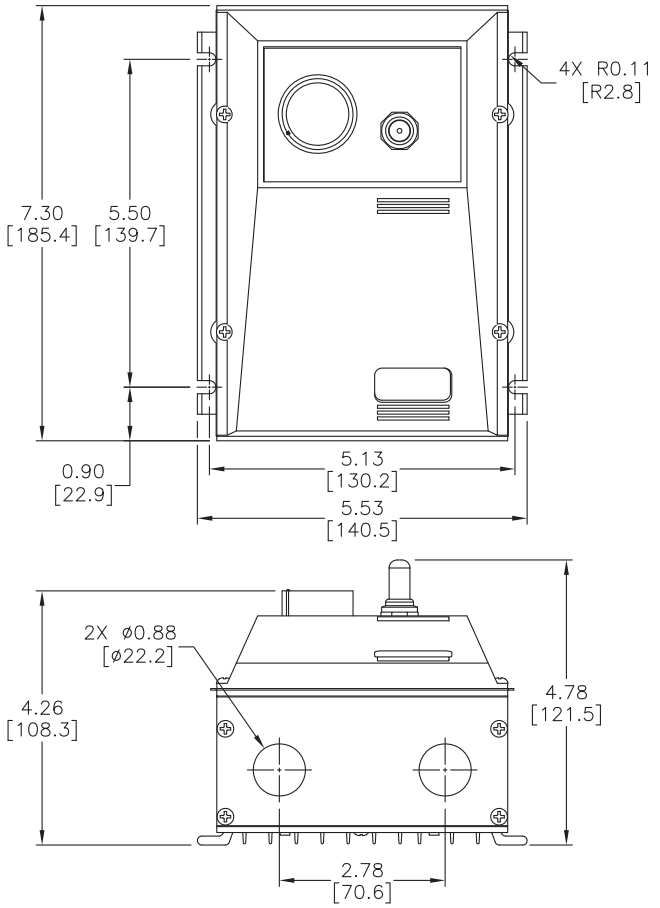
GSD1-xx-10C Dimensions



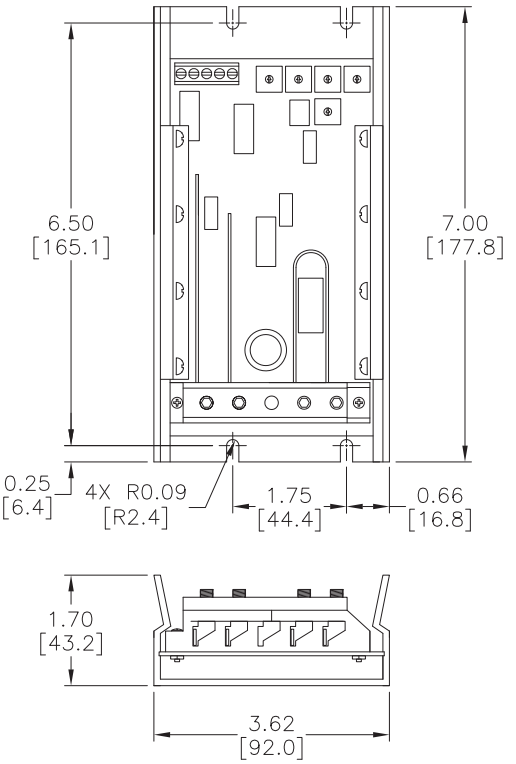
GSD1 Series DC Drives

GSD1 Dimensions — *dimensions = in [mm]*

GSD1-xx-10N4X Dimensions

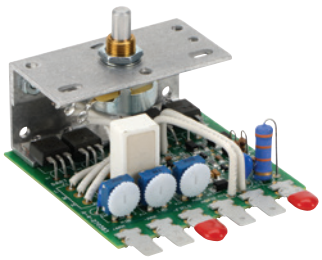


GSD1-xx-20C Dimensions

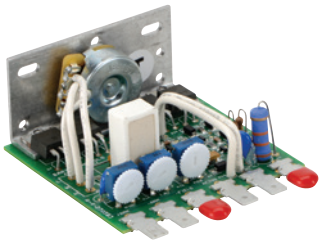


GSD3 Series DC Drives

GSD3 Introduction



GSD3-xxx-2CJ



GSD3-xxx-2CL

GSD3-24x-3N4

GSD3 Series DC Drives	
Motor Rating Range @ 12/24 VAC_{IN}	*1/50 – 1/12 hp*
Motor Rating Range @ 120/240 VAC_{IN}	*1/50 – 2/3 hp*

Overview

IronHorse GSD3 series DC drives are general-purpose, economical variable-speed controllers for small DC and universal motor applications.

Models are offered with dual input voltages of 12/24 VAC or 120/240 VAC with a DC output current rating of 2 Amps, adjustable trim pot settings, and quick-connect terminal pins.

GSD3 series DC drives are available in two compact panel-mount styles – open-frame and NEMA 4 enclosed.

Features

- Dual input voltage models of 12/24 VAC or 120/240 VAC
- Full-wave bridge power supply
- Adjustable minimum speed
- Adjustable maximum speed
- Adjustable IR compensation
- Fixed acceleration (0.5 seconds)
- 5kΩ speed potentiometer with leads, knob and dial included
- 25:1 speed range
- 1% speed regulation
- Shunt field supply provided (1 Amp max):
  - 10V for 12 VAC; 20V for 24 VAC input,
  - 100V for 120 VAC; 200V for 240 VAC input
- Overload capacity of 200% for one minute
- Transient voltage protection
- Power on/off switch (enclosed models)
- AC line fuse (120–240 VAC NEMA 4 only)

Accessories

- Replacement speed potentiometer kit

Detailed descriptions and specifications for GSD accessories are available in the "GSD Series DC Drives Accessories" section.

Typical Applications

- Auger feeders
- Automated door actuators
- Commercial cooking equipment
- Commercial lift
- Food production
- Industrial pumping systems
- Measurement instruments
- Miniature lathes and mills
- Packaging / material-handling equipment
- PLC-controlled reversing
- Printing and labeling machines
- Small shop machine tools
- Spray / print reciprocating head

GSD3 Series DC Drives

GSD3 Specifications

GSD3 Series DC Drives – Selection & Specifications						
Model	***GSD3-24A-2CJ***	***GSD3-24A-2CL***	***GSD3-24A-3N4***	***GSD3-240-2CJ***	***GSD3-240-2CL***	***GSD3-240-3N4***
Price	<--->	<--->	<--->	<--->	<--->	<--->
Package Configuration	open frame		NEMA 4	open frame		NEMA 4
Power Quality Form Factor	1.4					
Input Voltage	12/24 VAC ±10% @ 50/60 Hz			120/240 VAC ±10% @ 50/60 Hz		
Output Voltage	0–12 or 0–24 VDC			0-90/180 VDC		
Shunt Field Voltage & Current	10 VDC @ 12 VAC 20 VDC @ 24 VAC (1A max)		10 VDC @ 12 VAC 20 VDC @ 24 VAC (0.75A max)	100 VDC @ 120 VAC 200 VDC @ 240 VAC (1A max)		100 VDC @ 120 VAC 200 VDC @ 240 VAC (0.75A max)
Motor Rating (hp)	1/50 – 1/40 @ 11V 1/25 – 1/20 @ 22V		1/50 – 1/25 @ 11V 1/25 – 1/12 @ 22V	1/50 – 1/6 @ 90V 1/25 – 1/3 @ 180V		1/50 – 1/3 @ 90V 1/25 – 2/3 @ 180V
Output Current (continuous)	150 mA to 2A (DC)		150 mA to 3A (DC)	150 mA to 2A (DC)		150 mA to 3A (DC)
Current Overload Capacity	200% for 60s					
Current Limit	none					
Transient Protection	Metal Oxide Varistor (MOV)					
I.R. Compensation	adjustable – full range					
Speed Adjustment	5kΩ potentiometer					
Speed Range	25:1					
Speed Regulation	±1% of base speed					
Maximum Speed	adjustable from 40% to 120% of base speed					
Minimum Speed	adjustable from 0% to 30% of maximum speed					
Acceleration	0.5s (fixed)					
Deceleration	n/a (follows the ramp of the reference)					
Dynamic Braking	no					
Plugging Capability **	no					
Electrical Connections	spade-connector lugs					
External Fusing Required	Bussman ABC or Littlefuse 314 series ceramic fuses or equivalent GSD3-240-3N4 includes internal fusing adequate for 120 VAC line and neutral inputs Refer to wiring diagrams for external fusing requirements for other wiring configurations					
Operating Temperature	-10 to 45 °C [14 to 113 °F]		-10 to 40 °C [14 to 104 °F]	-10 to 45 °C [14 to 113 °F]		-10 to 40 °C [14 to 104 °F]
Thermal Protection	none					
Mounting Orientation	can be mounted in any orientation					
Corrosive Gases	NOT compatible with any corrosive gases					
Weight	2.9 oz [83g]	2.6 oz [75g]	20.3 oz [575g]	2.9 oz [83g]	2.6 oz [75g]	20.3 oz [575g]
Agency Approvals	RoHS			$_{C}$UL$_{US}$ listed (E333109), RoHS		
Optional Accessories *						
Replacement Potentiometer	GSDA-5K					

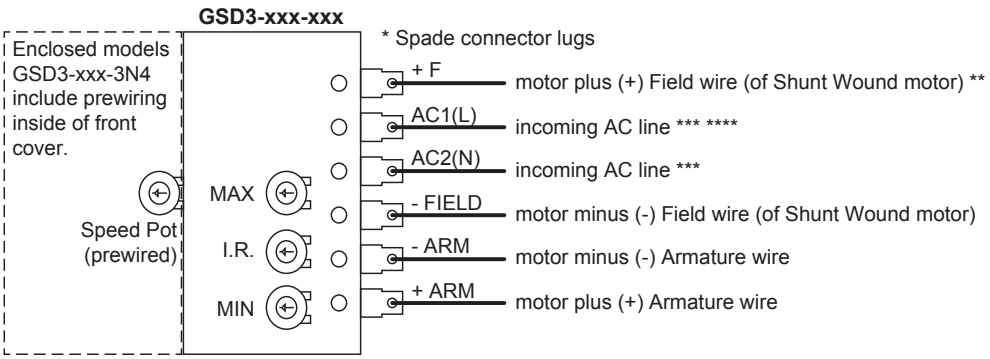
**** For accessories details, refer to the "GSD Series DC Drives Accessories" section.***

***** Plugging is a method of rapidly changing motor direction by reversing motor armature polarity, while the motor is still running.***

GSD3 Series DC Drives

GSD3 Wiring Diagrams

GSD3-24x-xxx Basic Wiring Diagram – *(refer to User Manual for more detailed wiring information)*



* *For wiring connections, use customer-supplied Sta-Kon 0.25 in x 0.25 in spade connectors or similar.*

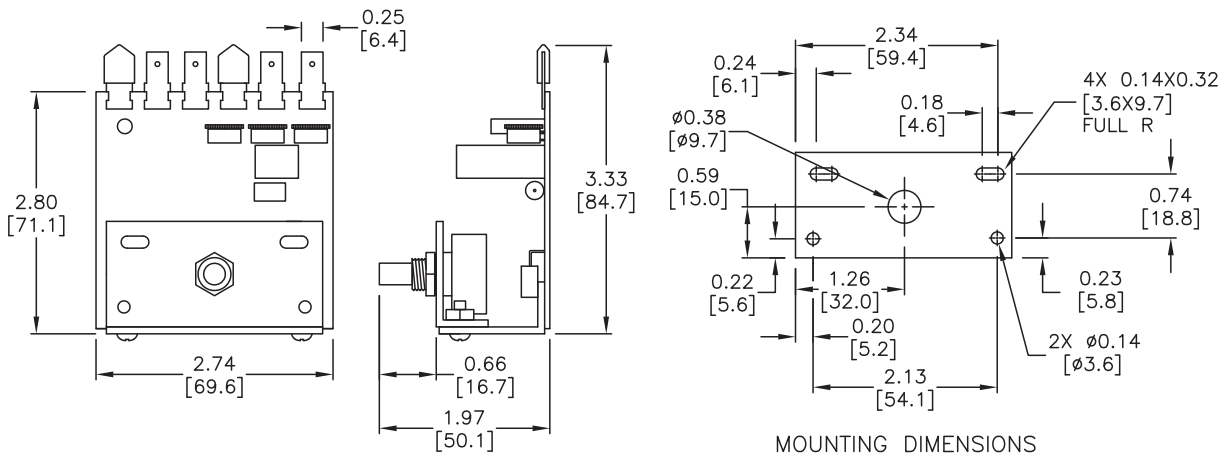
** *+F connection is only for Shunt Wound motor; NOT for Permanent Magnet motor. For motors with dual voltage field, i.e. 50/100V or 100/200V, connect the highest value.*

*** *Use normal-blow fuses in series with all ungrounded (hot) AC inputs, rated to 125% of motor current. NOTE: Fuse both AC input lines for 240 VAC input, where both lines are hot. For line-to-neutral circuits, fuse the hot input line and connect it to AC1.*

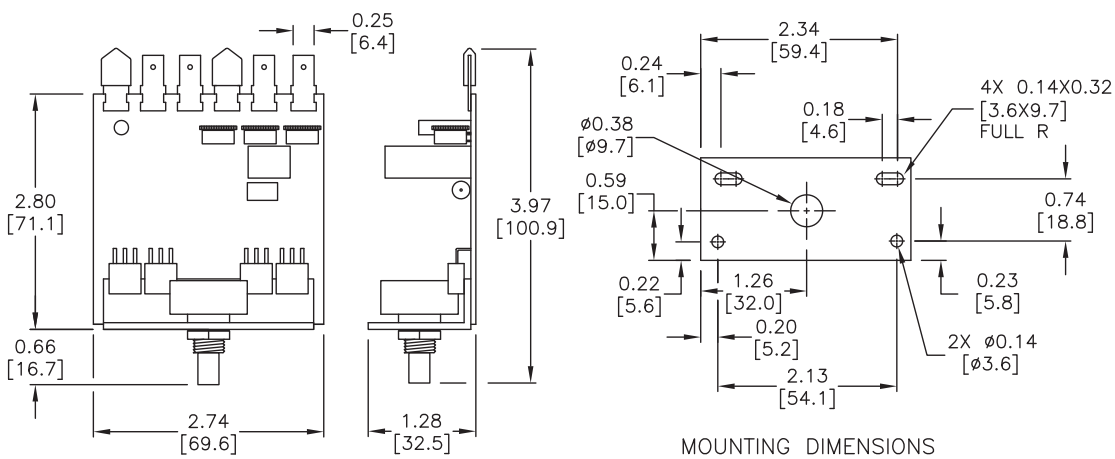
**** *GSD3-240-3N4 drives include a replaceable built-in fuse wired in line with AC1. (Fuse is 250VAC, 6.3A Littlefuse 21606.30 or equivalent.)*

GSD3 Dimensions – *dimensions = in [mm]*

GSD3-24x-2CJ Dimensions



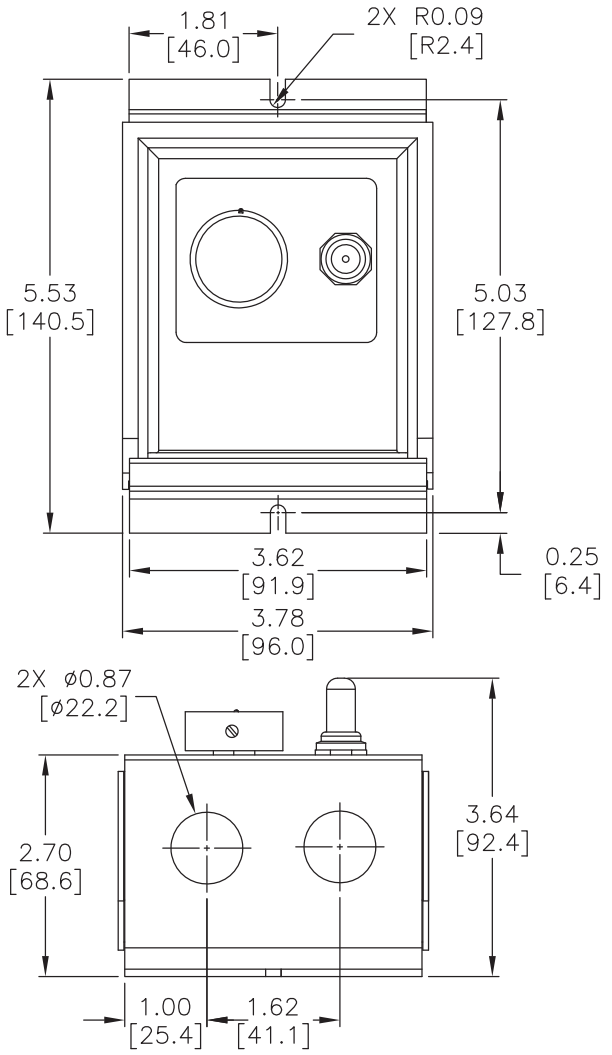
GSD3-24x-2CL Dimensions



GSD3 Series DC Drives

GSD3 Dimensions — *dimensions = in [mm]*

GSD3-24x-3N4 Dimensions



GSD4 Series DC Drives

GSD4 Introduction

GSD4-24x-xC

GSD4-240-10N4X

GSD4 Series DC Drives	
Motor Rating Range @ 24/36 VAC_{IN}	*1/50 – 1/6 hp*
Motor Rating Range @ 120/240 VAC_{IN}	*1/50 – 2 hp*

Overview

IronHorse GSD4 series DC drives provide cost efficient, reliable control for permanent magnet, shunt wound, and universal motors. The drives incorporate up-to-date design and engineering in a compact package.

Installation and field adjustments are facilitated using a barrier type terminal strip and large, easily adjustable trim pots to adjust horsepower ranges.

The GSD4-24A-5C model operates on a low input voltage of 24/36 VAC with an output of 1/50 – 1/6 hp.

Standard features include an inhibit circuit for start-stop operation, and 1% speed regulation over a 50:1 speed range. Dual voltage 120/240 VAC or 24/36 VAC models are available.

Long life and quality are assured by 100% full load testing.

Features

- Dual input voltage 120/240 VAC or 24/36 VAC, 50/60Hz
- Adjustable horsepower settings
- Barrier terminal strip
- Full-wave bridge supply
- 1% speed regulation with armature voltage feedback (±1/2% with tach feedback)
- Adjustable minimum speed
- Adjustable maximum speed
- Adjustable IR compensation
- Adjustable current limit
- Adjustable acceleration and deceleration (enclosed model only)
- Line voltage compensation
- 5kΩ speed potentiometer with leads, dial and knob included
- 50:1 speed range
- Overload capacity: 200% for one minute
- Transient voltage protection
- Voltage following mode or DC tachometer follower by supplying ungrounded analog input signal
- DC tachometer feedback
- Inhibit circuit – permits start and stop without breaking AC lines
- Shunt field supply provided

Accessories

- Replacement speed potentiometer kit
- Digital potentiometer
- Manual reverse switch
- Accel/Decel adjustment card
- Analog current input card
- Analog voltage input card
- Heatsink

Detailed descriptions and specifications for GSD accessories are available in the "GSD Series DC Drives Accessories" section.

Typical Applications

- Auger feeders
- Automated door actuators
- Commercial cooking equipment
- Commercial lift
- Food production
- Industrial pumping systems
- Measurement instruments
- Miniature lathes and mills
- Packaging / material-handling equipment
- Printing and labeling machines
- Small shop machine tools
- Spray / print reciprocating head

GSD4 Series DC Drives

GSD4 Selection and Specifications

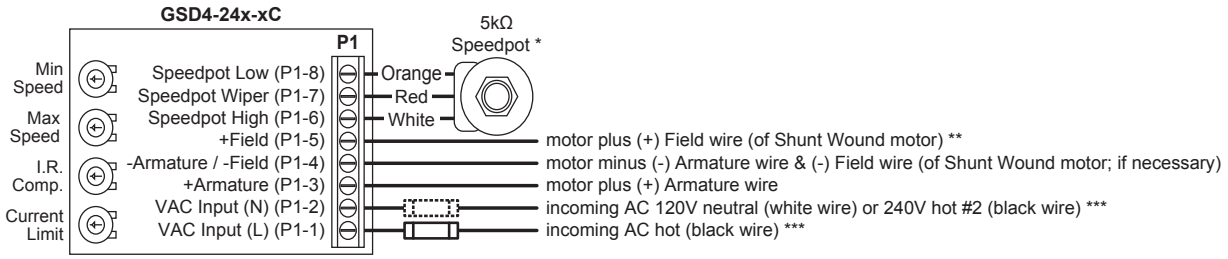
GSD4 Series DC Drives – Selection & Specifications				
Model	***GSD4-24A-5C***	***GSD4-240-1C***	***GSD4-240-5C***	***GSD4-240-10N4X***
Price	<--->	<--->	<--->	<--->
Package Configuration	open frame			NEMA 4X
Power Quality Form Factor	1.4			
Input Voltage (@50/60Hz)	24/36 VAC ±10%	120/240 VAC ±10%		
Output Voltage	0–24/36 VDC	0–90/180 VDC		
Shunt Field Voltage	20VDC @ 24VAC in 30VDC @ 36VAC in (1A max)	100VDC @ 120VAC in 200VDC @ 240VAC in (1A max)		100VDC @ 120VAC in 200VDC @ 240VAC in (0.5A max)
Motor Rating @ Low V (hp) ***Motor Rating @ High V (hp)***	1/50 – 1/6	1/50 – 1/8 1/25 – 1/4	1/8 – 1/2 1/4 – 1	1/8 – 1 1/4 – 2
Output Current (continuous) **	5.5A (DC)	1.2A (DC)	5.5A (DC)	10A (DC)
Current Overload Capacity	200% for 60s			
Current Limit (adjustable)	1–15A (DC)	0.3–2.5A (DC)	1–15A (DC)	
Transient Protection	none	Metal Oxide Varistor (MOV)		
I.R. Compensation	adjustable			
Speed Adjustment	5kΩ potentiometer or 0–10VDC isolated input signal			
	4–20mA			n/a
	–	0–5VDC thru 0–250VDC		
Speed Range	50:1			
Speed Regulation	±1% of base speed			
Maximum Speed	adjustable from 60% to 110% of base speed			
Minimum Speed	0–30% of adjustable maximum speed			
Acceleration	0.5s (fixed)			adjustable from 0.5–8s
Deceleration				
Dynamic Braking	no			
Plugging Capability **	no			
Electrical Connections	8-position terminal strip; 22–14 AWG			
External Fusing Required	Bussman ABC or Littlefuse 314 series ceramic fuses or equivalent Refer to wiring diagrams for details			
Operating Temperature	-10 to 45 °C [14 to 113 °F]			-10 to 40 °C [14 to 104 °F]
Thermal Protection	current limiting			
Mounting Orientation	can be mounted in any orientation			
Corrosive Gases	NOT compatible with any corrosive gases			
Weight	8.0 oz [203g]	37 oz [1049g]	10.5 oz [297g]	59.5 oz [1687g]
Agency Approvals	RoHS, CE	$_{C}$UL$_{US}$ listed (E198015), RoHS, CE		$_{C}$UL$_{US}$ listed (E198015), RoHS
Optional Accessories *				
Replacement Potentiometer	GSDA-5K			
Digital Potentiometer	GSDA-DP			
Manual Reverse Switch	GSDA-MREV			
Accel/Decel Adjustment Card	GSDA-ACCDEC-4			
Analog Current Input Card	GSDA-AI-A			–
Analog Voltage Input Card	–	GSDA-AI-V4		–
Heatsink	GSDA-HTSNK-4			–

**** For accessories details, refer to the "GSD Series DC Drives Accessories" section.***
***** Plugging is a method of rapidly changing motor direction by reversing motor armature polarity, while the motor is still running.***

GSD4 Series DC Drives

GSD4 Wiring Diagrams

GSD4-24x-xC Basic Wiring Diagram – *(refer to User Manual for more detailed wiring information)*

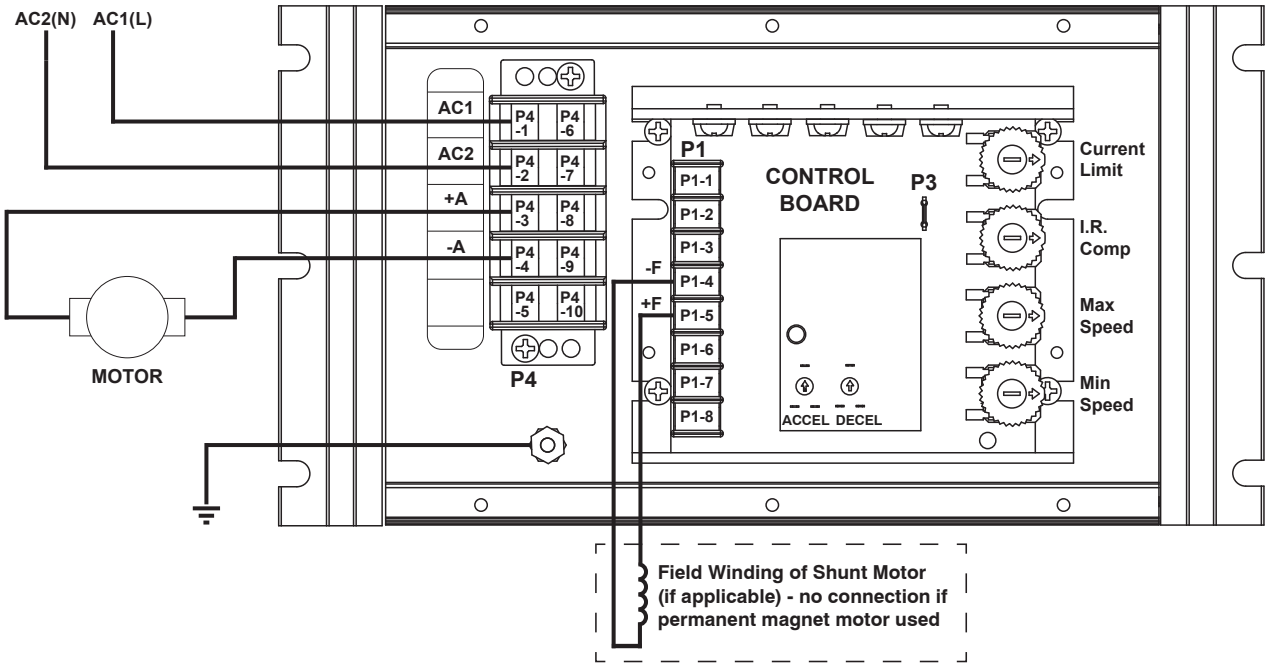


* *P1-6 has internal +12V, and connects to Speedpot High (white wire). THIS INPUT MUST NOT BE GROUNDED!*
For start-stop applications, the connection between P1-6 and Speedpot High can be opened and closed by a SPST switch.
* *P1-7 connects to Speedpot Wiper (red wire). THIS INPUT MUST NOT BE GROUNDED!*
For Voltage-Follower applications, THIS INPUT MUST NOT BE GREATER THAN +12V MAXIMUM!
* *P1-8 connects to Speedpot Low, and is raised and lowered by the Min Speed trimpot. THIS INPUT MUST NOT BE GROUNDED!*
Electronic speed input (voltage follower) may be referenced to this input if the Min Speed trimpot adjustments are to be active.
Otherwise, inputs may be referenced to -Armature, which will bypass the Min Speed trimpot.

** *+F connection is only for Shunt Wound motor; NOT for Permanent Magnet motor.*
For motors with dual voltage field, i.e. 50/100V or 100/200V, connect the highest value.

*** *Fuse hot AC inputs only; refer to Fusing section for size and type. Fuse both AC lines for 240 VAC input. Do NOT fuse AC(N) on 120V systems.*
Connect incoming AC ground (green wire) to GSD4 chassis.

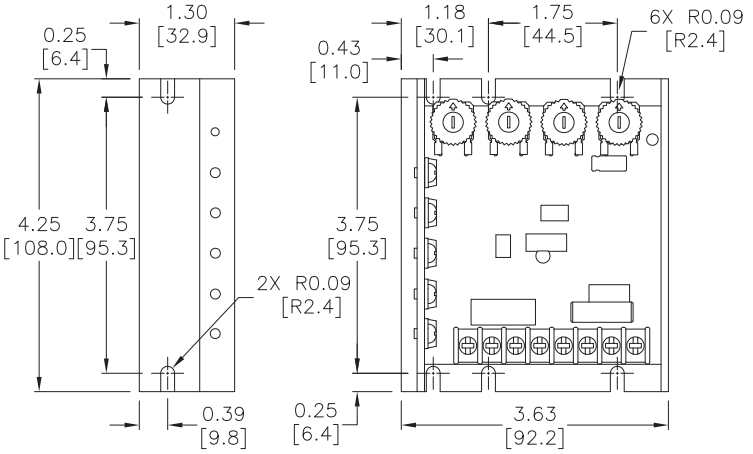
GSD4-240-10N4X Basic Wiring Diagram – *(refer to User Manual for more detailed wiring information)*



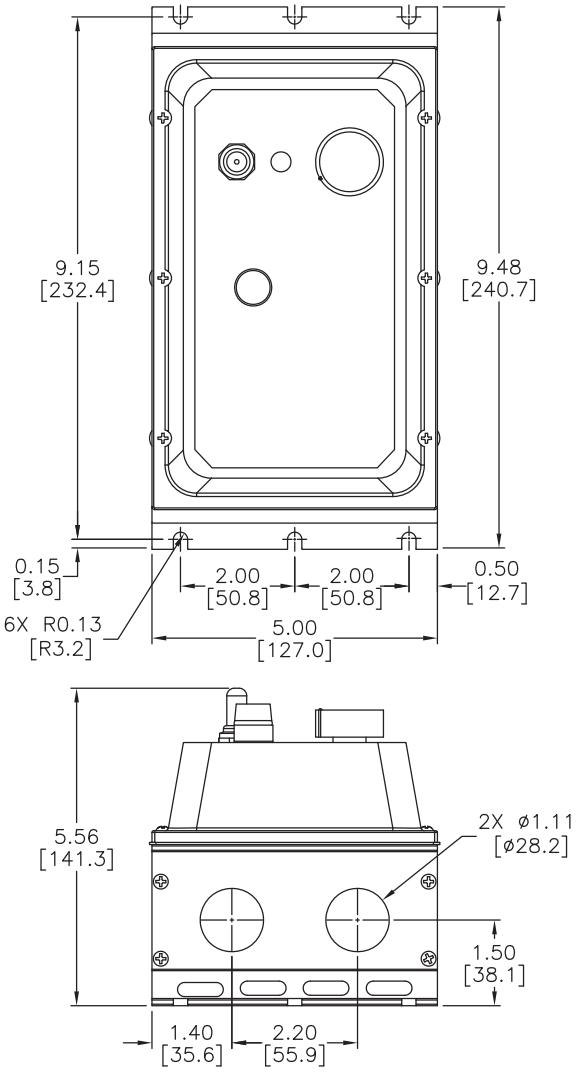
GSD4 Series DC Drives

GSD4 Dimensions — *dimensions = in [mm]*

GSD4-24x-xC Dimensions



GSD4-240-10N4X Dimensions



GSD5 Series DC Drives

GSD5 Introduction

GSD5-240-10C

GSD5-240-10N4-x

GSD5 Series DC Drives	
Motor Rating Range @ 120/240 VAC_{IN}	*1/8 – 2 hp*

Overview

IronHorse GSD5 series DC drives offer superb flexibility, reliability, and value. A general purpose, economical line of drives rated to 2 horsepower, it provides the ultimate in standard features and versatility, offered in open-frame and NEMA 4/12 enclosed models.

A logical, easily-accessible layout simplifies installation and adjustment. Clean design, quality components and careful assembly are trademarks of IronHorse GSD DC drives.

Features

- Dual input voltage – 120/240 VAC, 50/60Hz
- Adjustable horsepower settings
- Barrier terminal strip
- Packaged bridge supply (full wave)
- 1% speed regulation with armature voltage feedback (±1/2% with tach feedback)
- Adjustable minimum speed
- Adjustable maximum speed
- Adjustable IR compensation
- Adjustable linear acceleration
- Adjustable current limit
- Line voltage compensation
- 5kΩ speed potentiometer with leads, knob, and dial included
- Power on/off switch (enclosed models)
- 50:1 speed range
- Overload capacity: 150% for one minute
- Transient voltage protection
- Voltage following mode or DC tachometer follower by supplying ungrounded analog input signal
- DC tachometer feedback
- Inhibit circuit – permits start and stop without breaking AC lines
- Remote start/stop via pot circuit or inhibit circuit
- Shunt field supply provided
- AC line fuse
- Enclosed models rated NEMA 4/12 with threaded conduit holes

Accessories

- Replacement speed potentiometer kit
- Digital potentiometer
- Manual reverse switch
- Analog current input card
- Analog voltage input card

Detailed descriptions and specifications for GSD accessories are available in the "GSD Series DC Drives Accessories" section.

Typical Applications

- Auger feeders
- Automated door actuators
- Commercial cooking equipment
- Commercial lift
- Food production
- Industrial pumping systems
- Measurement instruments
- Miniature lathes and mills
- Packaging / material-handling equipment
- Printing and labeling machines
- Small shop machine tools
- Spray / print reciprocating head

GSD5 Series DC Drives

GSD5 Selection and Specifications

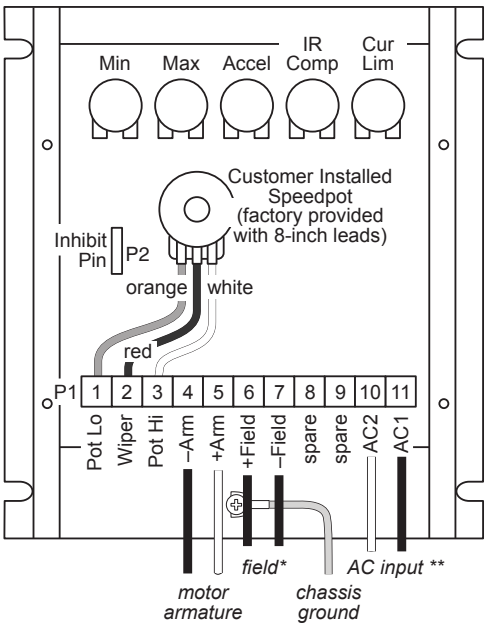
GSD5 Series DC Drives – Selection & Specifications					
Model	***GSD5-240 -10C***	***GSD5-240 -10N4***	***GSD5-240 -10N4-A***	***GSD5-240 -10N4-R***	***GSD5-240 -10N4-V***
Price	<--->	<--->	<--->	<--->	<--->
Package Configuration	open frame	NEMA 4/12			
Power Quality Form Factor	1.4				
Special Features	none		current follower	manual reversing	voltage follower
Input Voltage (@50/60Hz)	120/240 VAC ±10%				
Output Voltage	0–90/180 VDC				
Shunt Field Voltage	100VDC @ 120VAC input ; 200VDC @ 240VAC input ; (1A max)				
Motor Rating (hp)	1/8 – 1 hp @ 90VDC ; 1/4 – 2 hp @ 180VDC				
Output Current (continuous)	150mA – 10A (DC)				
Current Overload Capacity	150% for 60s				
Current Limit (adjustable)	1–15A (DC)				
Transient Protection	Metal Oxide Varistor (MOV)				
I.R. Compensation	adjustable				
Speed Adjustment	5kΩ 2W potentiometer or 0–10VDC isolated input signal				
Speed Range	50:1				
Speed Regulation	±1% of base speed (0.5% with tachometer feedback)				
Maximum Speed	adjustable from 66% to 110% of base speed				
Minimum Speed	linear ramp 0–30% of adjustable maximum speed				
Acceleration	linear ramp adjustable 0.5–8s				
Deceleration	adjustable 0.06–80s (dependent on acceleration time setting)				
Dynamic Braking	no				
Plugging Capability **	no				
Electrical Connections	barrier-type terminal strip; 26–12 AWG				
External Fusing Required	Bussman ABC or Littlefuse 314 series ceramic fuses or equivalent Refer to wiring diagrams for details				
Operating Temperature	-10 to 45 °C [14 to 113 °F]				
Thermal Protection	current limiting				
Mounting Orientation	can be mounted in any orientation				
Corrosive Gases	NOT compatible with any corrosive gases				
Weight	16.25 oz [413g]	25.50 oz [723g]			
Agency Approvals	$_{C}UL_{US}$ listed (E333109), RoHS				RoHS
Optional Accessories *					
Replacement Potentiometer	GSDA-5K				
Digital Potentiometer	GSDA-DP				
Manual Reverse Switch	GSDA-MREV	–	–	included	–
Analog Current Input Card	GSDA-AI-A	–	included	–	–
Analog Voltage Input Card	GSDA-AI-V5	–	–	–	included

**** For accessories details, refer to the "GSD Series DC Drives Accessories" section.***
***** Plugging is a method of rapidly changing motor direction by reversing motor armature polarity, while the motor is still running.***

GSD5 Series DC Drives

GSD5 Wiring Diagrams

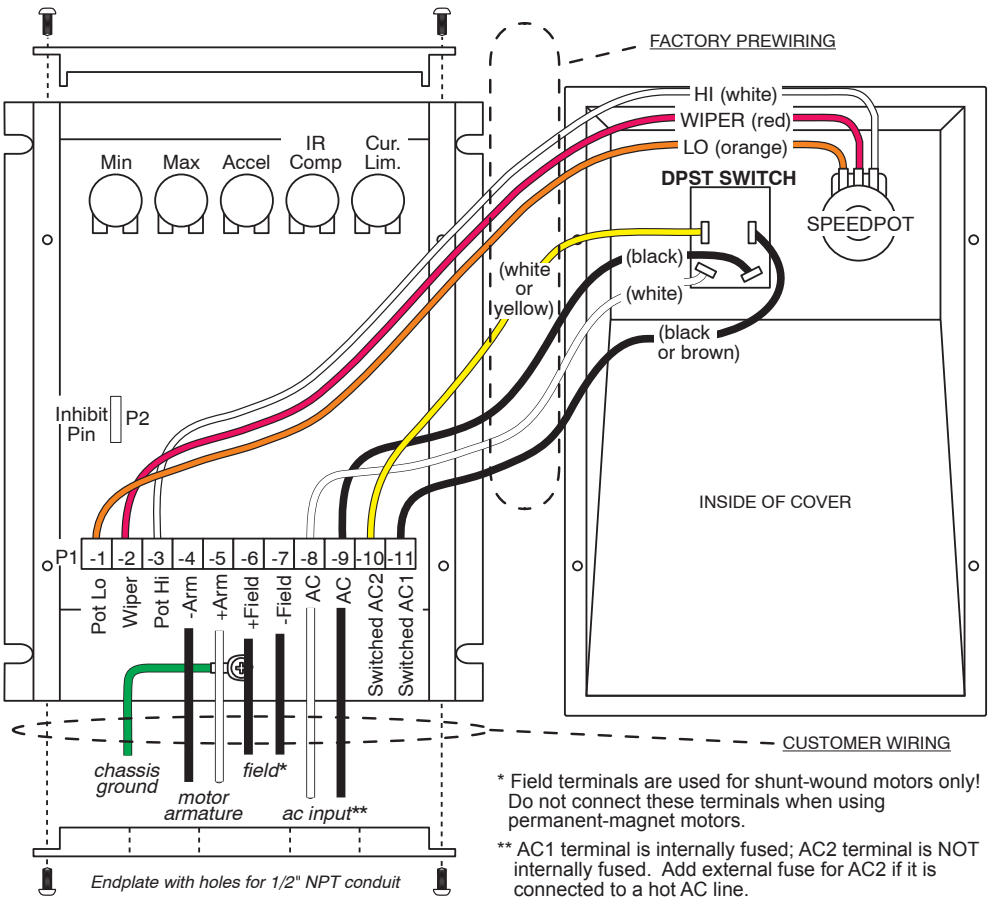
GSD5-240-10C Basic Wiring Diagram – *(refer to User Manual for more detailed wiring information)*



* Field terminals are used for shunt-wound motors only!
Do not connect these terminals when using permanent-magnet motors.

** AC1 terminal is internally fused; AC2 terminal is NOT internally fused.
Add external fuse for AC2 if it is connected to a hot AC line.

GSD5-240-10N4 Basic Wiring Diagram – *(refer to User Manual for more detailed wiring information)*



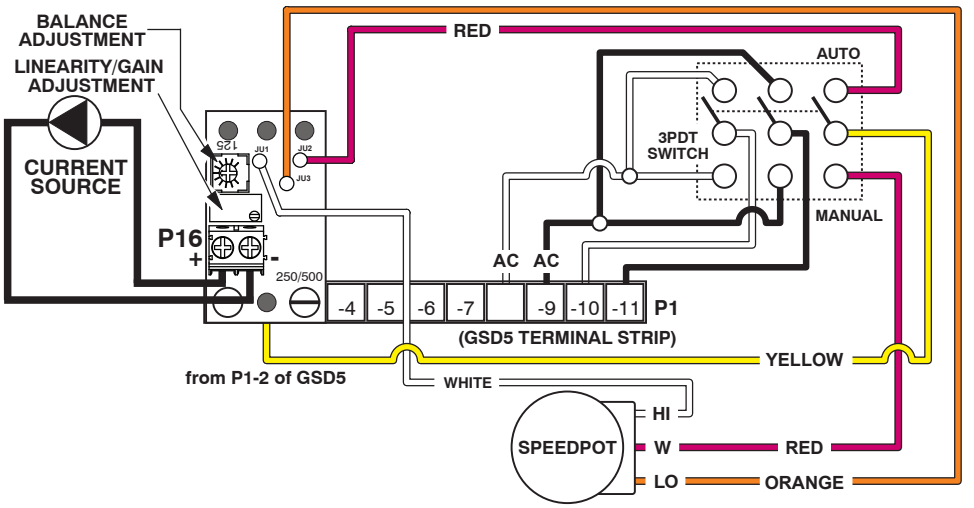
* Field terminals are used for shunt-wound motors only!
Do not connect these terminals when using permanent-magnet motors.

** AC1 terminal is internally fused; AC2 terminal is NOT internally fused. Add external fuse for AC2 if it is connected to a hot AC line.

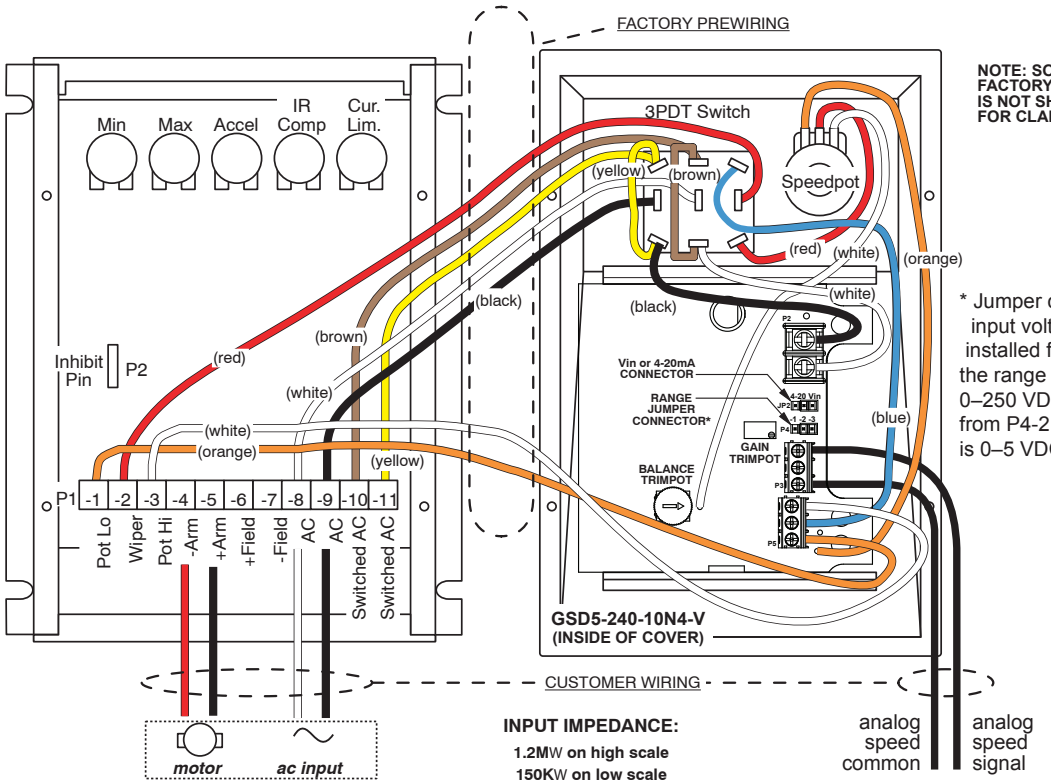
GSD5 Series DC Drives

GSD5 Wiring Diagrams

GSD5-240-10N4-A Basic Wiring Diagram – *(refer to User Manual for more detailed wiring information)*



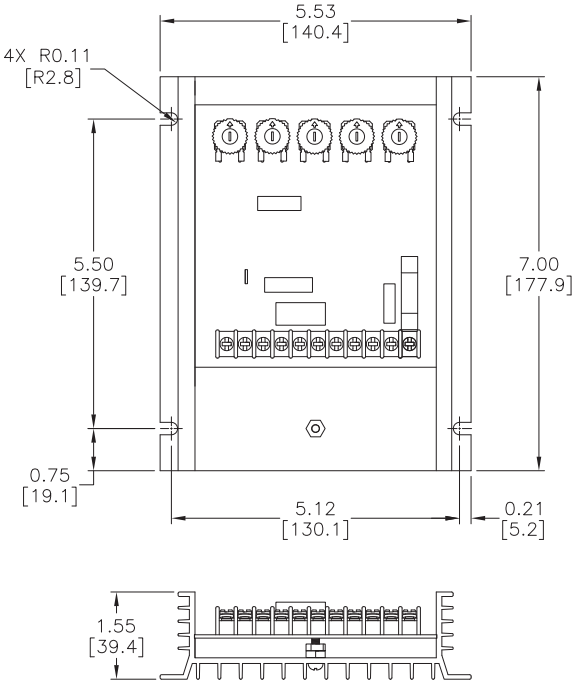
GSD5-240-10N4-V Basic Wiring Diagram – *(refer to User Manual for more detailed wiring information)*



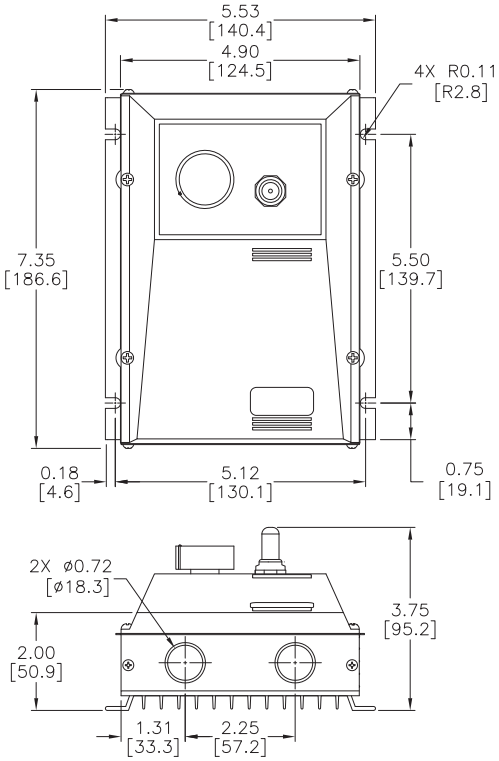
GSD5 Series DC Drives

GSD5 Dimensions — *dimensions = in [mm]*

GSD5-240-10C Dimensions



GSD5-240-10N4-x Dimensions



GSD6 Series DC Drives

GSD6 Introduction

GSD6-240-15C

GSD6 Series DC Drives	
Motor Rating Range @ 115/230 VAC_{IN}	*1/8 – 3 hp*

Overview

The reliable, versatile, and economical GSD6 DC drive is the most fully-featured IronHorse analog DC drive.

It provides many standard features typically offered as options by other DC drives.

By combining advanced engineering design, quality component selection, and rigorous quality control, the GSD6 DC drive offers an excellent off-the-shelf SCR control device. Its dependable, time-proven circuitry offers performance characteristics previously available only in more costly drives.

Features

- Dual input voltage 115/230 VAC, 50/60 Hz via slide selector switch
- Adjustable horsepower settings
- Barrier terminal strip
- Packaged bridge supply (full wave)
- 1% speed regulation with armature voltage feedback (±1/2% with tach feedback)
- Adjustable minimum speed
- Adjustable maximum speed
- Adjustable IR compensation
- Adjustable linear acceleration
- Adjustable linear deceleration
- Adjustable current limit
- Line voltage compensation
- 5kΩ speed potentiometer with leads, dial, and knob included
- 50:1 speed range
- Overload capacity: 200% for one minute
- Transient voltage protection
- Voltage following mode or DC tachometer follower by supplying ungrounded analog input signal
- DC tachometer feedback (jumper selectable)
- Inhibit circuit – permits start and stop without breaking AC lines
- Shunt field supply provided
- AC line fuses
- +12 VDC, 12mA power supply, user accessible

Accessories

- Replacement speed potentiometer kit
- Digital potentiometer
- Analog current input card

Detailed descriptions and specifications for GSD accessories are available in the "GSD Series DC Drives Accessories" section.

Typical Applications

- Auger feeders
- Automated door actuators
- Commercial cooking equipment
- Commercial lift
- Food production
- Industrial pumping systems
- Measurement instruments
- Miniature lathes and mills
- Packaging / material-handling equipment
- Printing and labeling machines
- Small shop machine tools
- Spray / print reciprocating head

GSD6 Series DC Drives

GSD6 Selection and Specifications

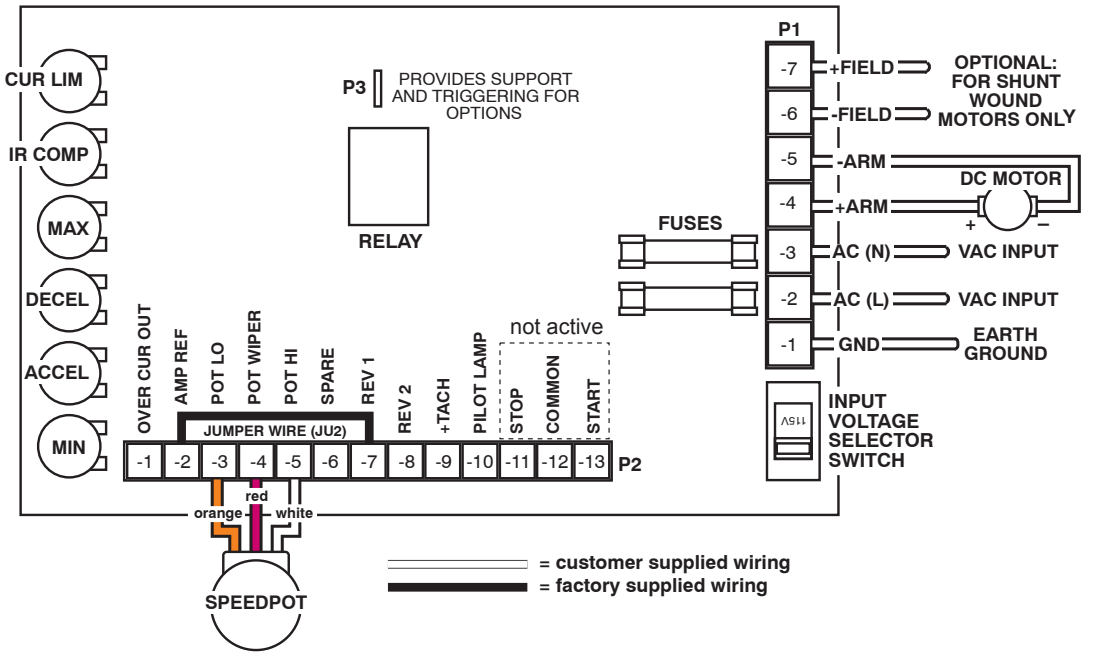
GSD6 Series DC Drives – Selection & Specifications	
Model	***GSD6-240-15C***
Price	<--->
Package Configuration	open frame
Power Quality Form Factor	1.4
Input Voltage (@50/60Hz)	115/230 VAC ±10%
Output Voltage	0–90/180 VDC
Shunt Field Voltage	100VDC @ 115VAC input ; 200VDC @ 230VAC input ; (1.5A max)
Motor Rating (hp)	1/8 – 1.5 hp @ 90VDC ; 1/4 – 3 hp @ 180VDC
Output Current (continuous)	15A (DC)
Current Overload Capacity	200% for 60s
Current Limit (adjustable)	2–30A (DC)
Transient Protection	Metal Oxide Varistor (MOV)
I.R. Compensation	adjustable
Speed Adjustment	5kΩ 2W potentiometer
Speed Range	50:1
Speed Regulation	±1% of base speed
Maximum Speed	adjustable from 60% to 120% of base speed
Minimum Speed	linear ramp 0–30% of adjustable maximum speed
Acceleration	linear ramp adjustable 0.3–12s
Deceleration	adjustable 0.6–12s
Dynamic Braking	no
Plugging Capability **	no
Electrical Connections	barrier-type terminal strip; 26–12 AWG
Fusing	(2) 20A fuses included (Bussman ABC-20 or Littlefuse 314020 ceramic fuses or equivalent)
Operating Temperature	-10 to 45 °C [14 to 113 °F]
Thermal Protection	not available
Mounting Orientation	can be mounted in any orientation
Corrosive Gases	NOT compatible with any corrosive gases
Weight	40 oz [1134g]
Agency Approvals	RoHS
Optional Accessories *	
Replacement Potentiometer	GSDA-5K
Digital Potentiometer	GSDA-DP
Analog Current Input Card	GSDA-AI-A

**** For accessories details, refer to the "GSD Series DC Drives Accessories" section.***
***** Plugging is a method of rapidly changing motor direction by reversing motor armature polarity, while the motor is still running.***

GSD6 Series DC Drives

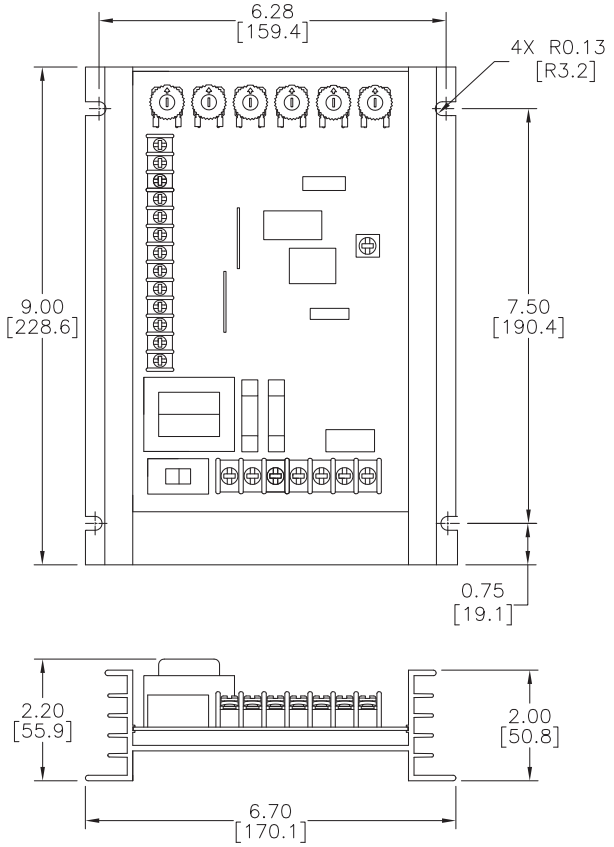
GSD6 Wiring Diagrams

GSD6-240-15C Basic Wiring Diagram – *(refer to User Manual for more detailed wiring information)*



GSD6 Dimensions – *dimensions = in [mm]*

GSD6-240-15C Dimensions



GSD7 Series DC Drives

GSD7 Introduction

GSD7-xxx-xCR3

GSD7-xxx-xCR30

GSD7 Series DC Drives	
Motor Rating Range @ 120 VAC_{IN}	*1/50 – 1 hp*
Motor Rating Range @ 240 VAC_{IN}	*1/25 – 2 hp*

Overview

Instant reversing, quick stopping, rapid cycling… The IronHorse GSD7 series DC drives outperform other dynamic braking and reversing drives by utilizing unique zero-speed detect and dynamic braking circuits.

These circuits eliminate the contact arcing and failed braking problems associated with other reversing and dynamic braking drives. The GSD7 zero-speed detect circuit also eliminates motor plug reversing problems.

In the event of a power loss or emergency stop condition, the GSD7 Series DC drives will drop into a dynamic brake condition to safely and quickly bring the motor to a stop.

Features

- Adjustable horsepower settings
- Barrier terminal blocks
- Full-wave bridge supply
- Adjustable minimum speed
- Adjustable maximum speed
- Adjustable IR compensation
- Adjustable current limit
- Fixed acceleration (0.5 sec)
- Line voltage compensation
- 5kΩ pot with leads, dial, and knob included
- 50:1 speed range
- Overload capacity: 200% for one minute
- Transient voltage protection
- Shunt field supply provided
- Onboard dynamic brake resistor
- Automatic dynamic braking on power loss
- 1% speed regulation with armature voltage feedback

Accessories

- Replacement speed potentiometer kit
- Digital potentiometer

Detailed descriptions and specifications for GSD accessories are available in the "GSD Series DC Drives Accessories" section.

Typical Applications

- Auger feeders
- Automated door actuators
- Commercial cooking equipment
- Commercial lift
- Food production
- Industrial pumping systems
- Measurement instruments
- Miniature lathes and mills
- Packaging / material-handling equipment
- PLC-controlled reversing
- Printing and labeling machines
- Small shop machine tools
- Spray / print reciprocating head

GSD7 Series DC Drives

GSD7 Selection and Specifications

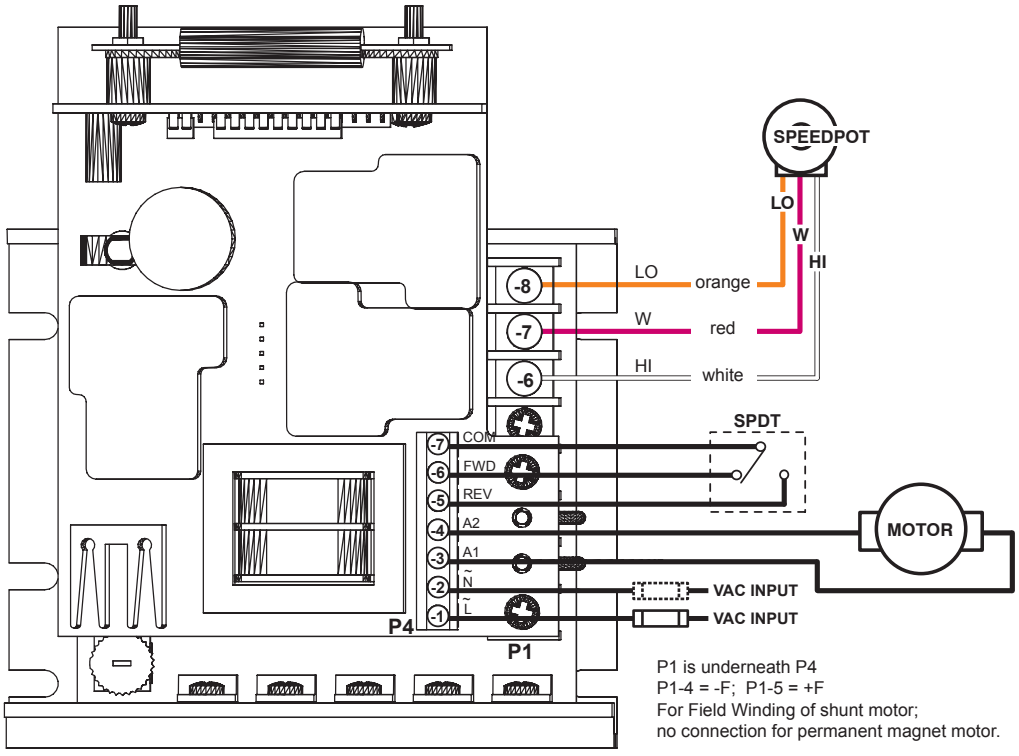
GSD7 Series DC Drives – Selection & Specifications							
Model	***GSD7-120 -1CR3***	***GSD7-120 -1CR30***	***GSD7-120 -5CR3***	***GSD7-120 -10CR30***	***GSD7-240 -1CR3***	***GSD7-240 -5CR3***	***GSD7-240 -10CR30***
Price	<--->	<--->	<--->	<--->	<--->	<--->	<--->
Package Configuration	open frame						
Power Quality Form Factor	1.4						
Input Voltage (@50/60Hz)	120 VAC ±10%				240 VAC ±10%		
Output Voltage	0–90 VDC				0–180 VDC		
Shunt Field Voltage	100 VDC (1A max)				200 VDC (1A max)		
Motor Rating (hp)	1/15 – 1/8		1/8 – 1/2	1/8 – 1	1/25 – 1/4	1/4 – 1	1/4 – 2
Output Current (continuous)	500mA–1.2A (DC)		500mA–5.5A (DC)	500mA–10A (DC)	500mA–1.2A (DC)	500mA–5.5A (DC)	500mA–10A (DC)
Current Overload Capacity	200% for 60s						
Current Limit (adjustable)	0.3–3A (DC)		1–18A (DC)		0.3–3A (DC)	1–18A (DC)	
Cycling Rate (cycles/min)	3	30	3	30	3	3	30
Transient Protection	Metal Oxide Varistor (MOV)						
I.R. Compensation	adjustable						
Speed Adjustment	5kΩ 0.5W potentiometer or 0–10VDC isolated input signal						
Speed Range	50:1						
Speed Regulation	±1% of base speed						
Maximum Speed	adjustable from 60% to 110% of base speed						
Minimum Speed	linear ramp 0–30% of adjustable maximum speed						
Acceleration	0.5s fixed						
Deceleration	0.5s fixed						
Dynamic Braking	yes						
Plugging Capability **	yes						
Electrical Connections	barrier-type terminal blocks; 22–14 AWG						
External Fusing Required	Bussman ABC or Littlefuse 314 series ceramic fuses or equivalent Refer to “Installation and Wiring” section of user manual for details						
Operating Temperature	-10 to 45 °C [14 to 113 °F]						
Thermal Protection	current limiting						
Mounting Orientation	can be mounted in any orientation						
Corrosive Gases	NOT compatible with any corrosive gases						
Weight	1.1 lb [490g]	3.3 lb [1497g]	1.1 lb [490g]	3.3 lb [1497g]	1.1 lb [490g]	1.1 lb [490g]	3.3 lb [1497g]
Agency Approvals	$_{C}UL_{US}$ (E333109), RoHS						
Optional Accessories *							
Replacement Potentiometer	GSDA-5K						
Digital Potentiometer	GSDA-DP						

**** For accessories details, refer to the "GSD Series DC Drives Accessories" section.***
***** Plugging is a method of rapidly changing motor direction by reversing motor armature polarity, while the motor is still running.***

GSD7 Series DC Drives

GSD7 Wiring Diagrams

GSD7-xxx-xxxxx Basic Wiring Diagram – *(refer to User Manual for more detailed wiring information)*

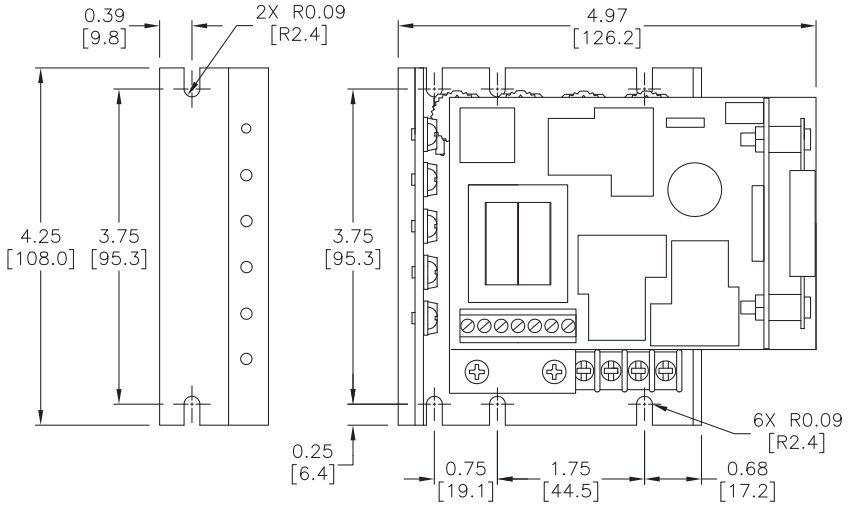


P1 is underneath P4
P1-4 = -F; P1-5 = +F
For Field Winding of shunt motor;
no connection for permanent magnet motor.

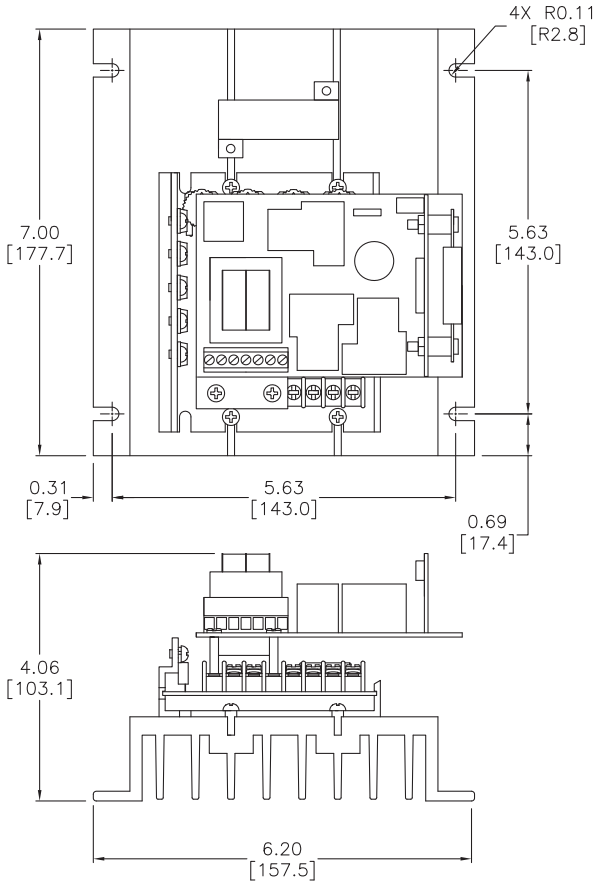
GSD7 Series DC Drives

GSD7 Dimensions — *dimensions = in [mm]*

GSD7-xxx-xCR3 Dimensions



GSD7-xxx-xCR30 Dimensions



GSD Series DC Drives Accessories

GSDA Accessories for GSD Series DC Drives – Selection & Specifications

GSDA Accessories for GSD Series DC Drives			
Model	***Price***	***Description***	***For Use With***
GSDA-5K	<--->	Speed Potentiometer Kit. 5kΩ accessory/replacement. Includes adjustment knob and 0-100% speed dial.	GSD - all
GSDA-ACCDEC-4	<--->	Independent Accel/Decel Adjustment Card. Field installable.	GSD4 - all
GSDA-AI-A	<--->	Isolated Analog Current Signal Input Card. Range: 4–20mA. Field installable for open-frame drives as shown.	GSD4-24x-xC (open-frame) GSD5-240-10C (open-frame) GSD6 (open-frame)
GSDA-AI-V4	<--->	Isolated Analog Voltage Signal Input Card. Range: 0–10V or 0–250V. Field installable for open-frame drives as shown.	GSD4-240-xC (240V open-frame)
GSDA-AI-V5	<--->	Isolated Analog Voltage Signal Input Card. Range: 0–10V or 0–250V. Field installable for open-frame drives as shown.	GSD5-240-10C (open-frame)
GSDA-DP	<--->	Digital Potentiometer. 120–240 VAC input. Programmable. Outputs any unipolar or bipolar voltage range (based on input voltage) up to 24VDC (±12V, ±10V, 0–5V, 0–24V, etc.). NEMA 4X enclosure fits 1/8 DIN cutout. Replaces analog potentiometers where vibration, repeatability, or precision is a concern.	GSD1 - all GSD4 - all GSD5 - all GSD6 - all GSD7 - all
GSDA-MREV	<--->	Manual Reverse Switch. 4PDT rated at 10A. Allows reversing by switching DC motor armature leads. Center-blocking prevents motor leads from reversing when motor is still turning in the previous direction.	GSD4 - all GSD5-240-10C (open-frame)
GSDA-HTSNK-4	<--->	Heatsink. Increases the drive's output current rating.	GSD4-24x-xC (open-frame)
NOTE: All GSDA Accessories are RoHS compliant.			

GSDA-5K

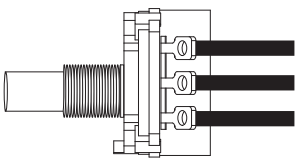
For use with all GSD series DC drives

The GSDA-5K is a replacement potentiometer kit that can be used with IronHorse GSD series DC drives to control the speed of a DC motor.
(All GSD series DC drives include a speed potentiometer.)

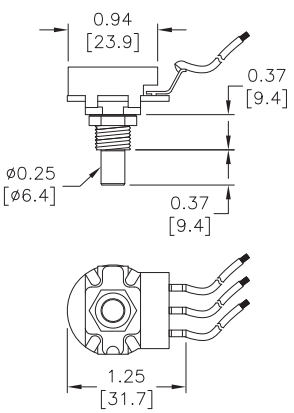
The kit includes:

(1) 5kΩ potentiometer
(3) pigtail wiring leads (8-1/2 in; 20 AWG)
(1) adjustment knob
(1) 0–100% dial
(1) mounting nut and lock washer

Wiring Connections



Dimensions (in [mm])



GSD Series DC Drives Accessories

GSDA-ACCDEC-4

For use with all GSD4 DC drives

The GSDA-ACCDEC-4 option card overrides the fixed accel ramp built into the GSD4 drive, providing independently adjustable linear acceleration and deceleration from 0.5 to 8.0 seconds. Adjustments are made via two separate trim pots.

This option card plugs into the expansion connector on the GSD4 main circuit board.

GSDA-ACCDEC-4 installation and wiring information is included in the GSD4 DC Drives User Manual.

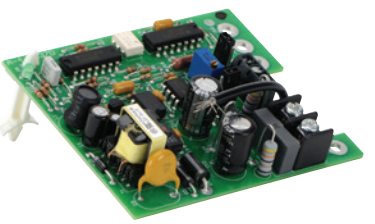
GSDA-AI-A

For use with DC drives: GSD4-24x-xC, GSD5-240-10C, GSD6-all (open-frame)

This option card is a 4–20 mA isolated analog current signal card that can replace the speed pot as a speed input signal to certain GSD series drives. The 4–20 mA signal input can be either grounded or ungrounded. The board sets on spacers screwed to the potentiometer HI, Wiper, and LO terminals on the main GSD drive board using screws (included).

GSDA-AI-A installation and wiring information is included in the GSDA-AI-A DC Drives Accessory Data Sheet.

GSDA-AI-V4



For use with GSD4-240-xC (120–240V open-frame) DC drives

This option card allows for the use of either a grounded or non-grounded remote DC signal such as 0–5 VDC through 0–250 VDC, 4–20mA current, or a remote speed pot. The DC input signal type can be selected for voltage (Vin) or current (4–20mA), and there is a GAIN trim pot to set full linear output in reference to the input signal range. The output of this remote signal isolation board is a linear signal that is proportional to the remote input signal being supplied.

GSDA-AI-V4 installation and wiring information is included in the GSD4 DC Drives User Manual.

GSDA-AI-V5

For use with GSD5-240-10C (open-frame) DC drives

This option card allows for the use of either a grounded or non-grounded remote DC signal such as 0–5 VDC through 0–250 VDC, 4–20mA, or a remote speed potentiometer. The DC input signal type can be selected for voltage (Vin) or current (4–20mA), and there is a Hi/Lo range selection to select the voltage ranges. The GAIN trim pot is used to set full linear output in reference to the input signal range. The output of this remote signal isolation board is a linear signal that is proportional to the remote input signal being supplied.

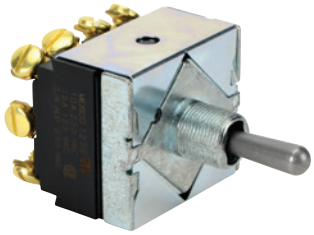
GSDA-AI-V5 installation and wiring information is included in the GSD5 DC Drives User Manual.

GSD Series DC Drives Accessories

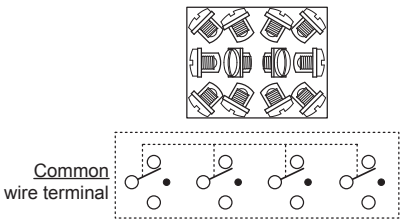
GSDA-MREV

For use with DC drives: GSD3 - all, GSD4 - all, GSD5-240-10C (open-frame)

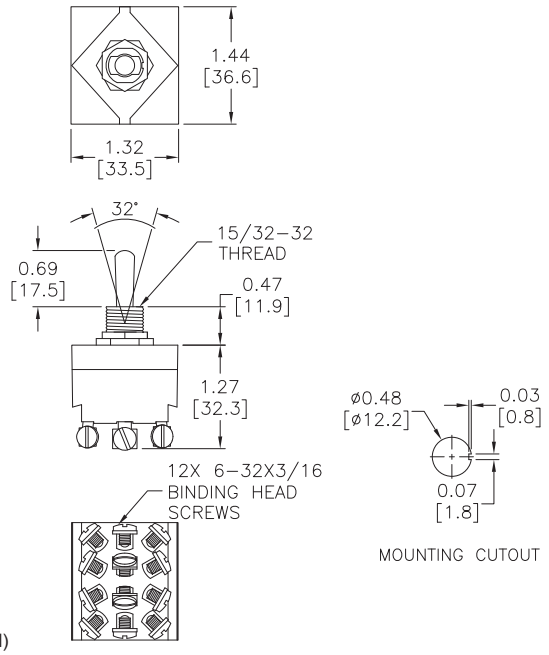
The GSDA-MREV Manual Reversing Switch is a 4PDT 10A-rated center-blocked manual switch that can be used with IronHorse GSD series DC drives to manually reverse the direction of a DC motor. When switched between the Forward and Reverse positions, the blocked center position causes a delay which protects the DC drive from any voltage that may be on the motor armature terminals. The center position is OFF/NEUTRAL, and is not connected to a wiring terminal.



Use the GSDA-MREV switch to manually reverse a DC motor without damaging the drive.



Dimensions (in [mm])



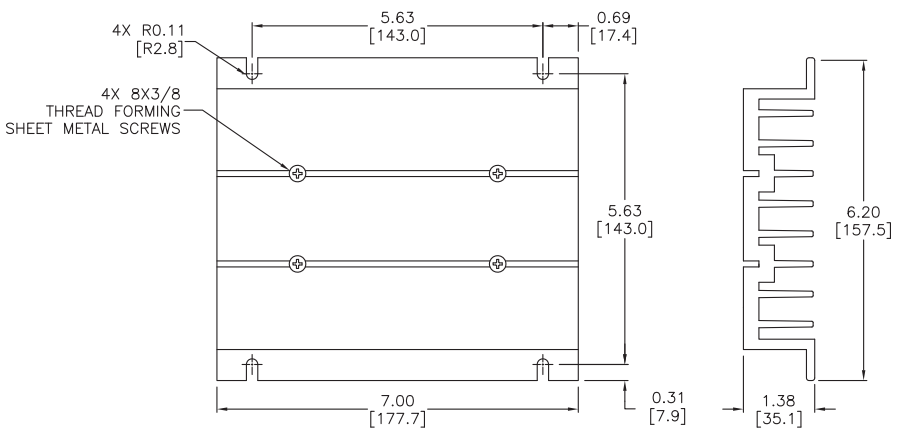
GSDA-HTSNK-4

For use with GSD4-xxx-xC (open-frame) DC drives

Optional heatsink for open-frame GSD4-xxx-1C and GSD4-xxx-5C DC drives only.

Increases the output current capability of GSD4-240-5C drives to 10A (*non-UL applications only*).

Dimensions (in [mm])



GSD Series DC Drives Accessories

GSDA-DP

For use with DC drives: GSD1 - all, GSD3-24A-xxx (12–24V), GSD4 - all, GSD5 - all, GSD6 - all, GSD7 - all

The GSDA-DP digital potentiometer is a compact, microprocessor-based unit capable of being either field or factory configured for a number of industrial user interface / control signal needs. The GSDA-DP allows the user to adjust the displayed value via the front-panel push buttons. As the displayed value is raised or lowered, the output signal from the GSDA-DP follows proportionally according to the unit's configuration. These units support both unipolar and bipolar output and are capable of automatically inverting, scaling, and offsetting the output as needed. The GSDA-DP series is ideal for volume OEM applications requiring specialized inputs and outputs.

The GSDA-DP durable 1/8 DIN aluminum housings can be easily mounted in a panel or control cabinet.

Standard Features

- Microprocessor-based design combines the ultimate in responsiveness and accuracy in one package
- Non-volatile memory stores adjustable parameters even when power has been removed
- Adjustable parameters include display range, output range, output polarity, alarm options, etc.
- Internal program-enable jumper selectively prevents tampering with unit's configuration
- Universal power supply accepts line voltages inputs from 85–265 VAC @ 50–60Hz without switches or jumpers. The unit automatically adjusts as needed.
- Transient voltage protection prolongs unit's life in harsh industrial environments
- Self-contained power supply for external sensor, limited to 5V @ 50mA
- 1/8 DIN durable aluminum housing for panel mounting
- Large 4-digit, 1/2" LED display
- G.E. Lexan membrane and gasket (which are included) meet NEMA 4X standards when used with NEMA 4X enclosures
- Wide operating ambient temperature range of -10 °C to 45 °C (14 °F to 113 °F)
- Multiple operating modes including:
  - Rate Mode* – Displays in rate and non-rate units such as rpm, gallons per second, and percent
  - Time Mode* – Displays in time units such as HH:MM, MM:SS, SS:TT, or other units
  - Rate and Time Modes operate inversely from each other

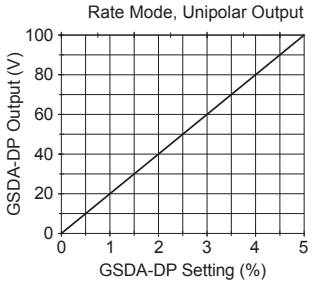
GSDA-DP – Specifications		
Electrical	*Line Input Voltage*	85–265 VAC
	Line Input Frequency	48–62 Hz
	Display Range	0.001 – 9999
	Units of Operation	User Programmable, any Unit
	Onboard Power Supply (externally accessible)	5V @ 50mA
	Pot Lo/Hi Supply VDC Range (external supply)	0–2 VDC through 0–24 VDC
	Pot Wiper VDC Range	Pot Lo +50mV through Pot Hi -50mV
	Pot Circuit Current Draw	2mA @ 12V
	Pot Circuit Isolation	>500 MΩ
	Isolated Alarm Relay Output Ratings	250VAC @ 5A; Form C
	Resolution of D-A Converter	10 bits
	Analog Output	Any unipolar or bipolar voltage range (based on input voltage) up to 24VDC
Mechanical	*Display Type*	LED, Red, 4-Digit, 1/2 in Height
	Housing Type (with supplied gasket in NEMA 4X panel)	1/8 DIN NEMA 4X
	Connector Style	12-position 5mm European Style
	Terminal Block Torque Setting	4.4 lb·in Max [0.5 N·m]
	Faceplate Material	Polycarbonate with GE Lexan Overlay
	Housing Material	Aluminum
	Weight	14.4 oz [408.22g]
Environmental	*Operating Temperature Range*	-10 °C to 45 °C [14 °F to 113 °F]
	Operating Humidity Range	95% non-condensing
Regulatory	*Agency Approvals*	RoHS

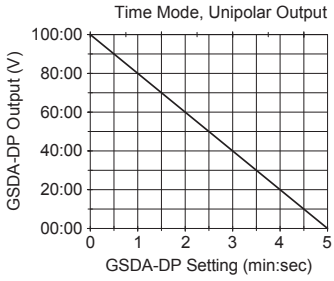
GSD Series DC Drives Accessories

GSDA-DP

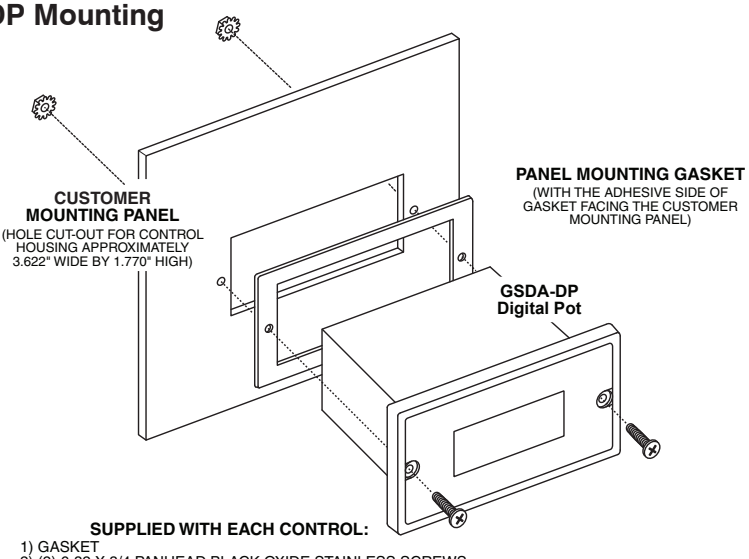
GSDA-DP Operation Modes

Rate and Time mode cycle times operate inversely from each other.





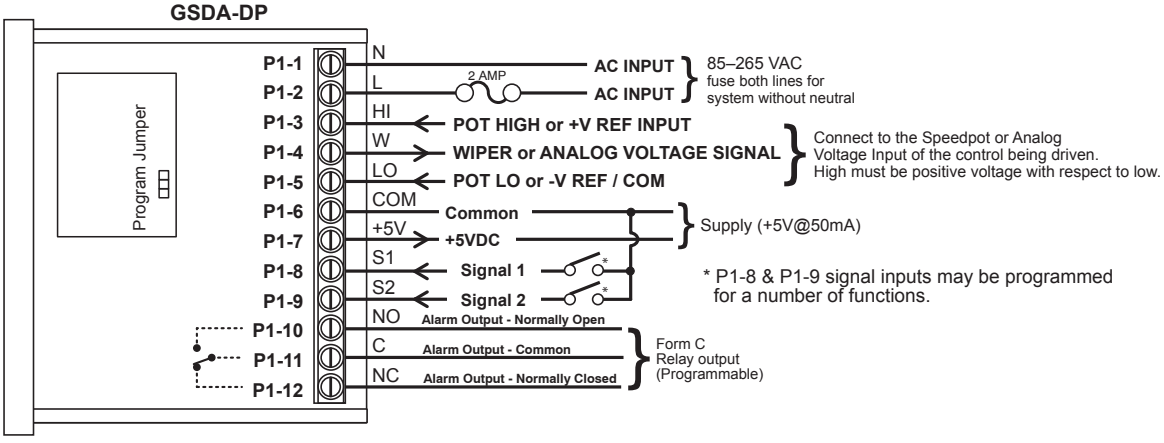
GSDA-DP Mounting


CUSTOMER MOUNTING PANEL
(HOLE CUT-OUT FOR CONTROL HOUSING APPROXIMATELY 3.622" WIDE BY 1.770" HIGH)
PANEL MOUNTING GASKET
(WITH THE ADHESIVE SIDE OF GASKET FACING THE CUSTOMER MOUNTING PANEL)
GSDA-DP Digital Pot

SUPPLIED WITH EACH CONTROL:

1) GASKET
2) (2) 6-32 X 3/4 PANHEAD BLACK OXIDE STAINLESS SCREWS
3) (2) #6 NUT WITH LOCKWASHER

GSDA-DP Wiring



GSDA-DP Dimensions (in [mm])